BONNEVILLE POWER ADMINISTRATION AND STATES OF THE PACIFIC NORTHWEST

HEARING

BEFORE THE

SUBCOMMITTEE ON SEPARATION OF POWERS

OF THE

COMMITTEE ON THE JUDICIARY
UNITED STATES SENATE

NINETY-SEVENTH CONGRESS

SECOND SESSION

ON

BONNEVILLE POWER ADMINISTRATION AND STATES OF THE PACIFIC NORTHWEST

Held at Helena, Montana

AUGUST 31, 1982

Serial No. J–97–148

Printed for the use of the Committee on the Judiciary

U.S. GOVERNMENT PRINTING OFFICE
13-410 O
WASHINGTON : 1983

S 521-42

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BONNEVILLE POWER ADMINISTRATION AND STATES OF THE PACIFIC NORTHWEST

TUESDAY, AUGUST 31, 1982

U.S. SENATE,
SUBCOMMITTEE ON SEPARATION OF POWERS,
COMMITTEE ON THE JUDICIARY,
Helena, Mont.

The Subcommittee on Separation of Powers met, pursuant to notice, on Tuesday, August 31, 1982, at 9 a.m., in the Commission Room, City-County Building, 316 North Park, Helena, Mont., Hon. Max Baucus (acting chairman of the subcommittee) presiding.

Staff present: Rick Applegate, senior legislative assistant.

OPENING STATEMENT OF SENATOR BAUCUS

Senator BAUCUS. The hearing will come to order. Today the Subcommittee on Separation of Powers will hear testimony on the relationship between the Bonneville Power Administration and the States and citizens of the Pacific Northwest. BPA was created in 1937 to market power from Federal hydro projects and, since that date, it has had an enormous impact on the States of this region.

In recent years the role of BPA has become increasingly controversial. Projected power shortages, the debate over nuclear power, the construction of transmission lines, the demand for increased public involvement in BPA decisions—all found BPA at the center of a fire storm of public criticism. Lately, that criticism has been particularly sharp. Gov. Ted Schwinden of the State of Montana recently suggested that BPA was being a "bad neighbor in Montana" and expressed "continuing frustration with the insensitivity of BPA to the interests of Montana people." Senator Mark Hatfield of Oregon has termed the agency's conservation program "completely inadequate." Congressman Pat Williams has promised "political hell" if BPA cannot learn to be more responsive.

I receive countless complaints about BPA's insensitivity and even arrogance in my travels around Montana. In short, the Pacific Northwest is a region sorely unhappy with the Bonneville Power Administration. I am conducting this hearing to find the truth behind these complaints. BPA can't possibly be the only one in step in the parade. I hope the agency today will present some specific reform proposals to improve not only its image, but also its practice in the Pacific Northwest States.

In 1980, Congress revolutionized the responsibilities of the Bonneville Power Administration and created a unique regional planning council to oversee BPA's work. BPA itself was directed in no uncertain terms to go beyond the marketing of Federal hydropower and the quiet, indirect promotion of conventional energy generation. Now

BPA is charged with the task of promoting energy conservation throughout the region. But based on what I have seen so far, I am not convinced the agency is taking this mandate seriously enough.

BPA's decision to stop acquiring alternative energy resources is inappropriate and, I believe, contrary to the letter of applicable Federal law. This region desperately needs a vigorous program to save energy. We would all benefit from such a program. In fact, we should become the Nation's showcase in developing alternative, renewable sources of energy and in promoting conservation. But we cannot do that unless we build substantial momentum in that direction over the next few years. Barely 2 years ago, BPA accepted projections that soberly warned of imminent power shortages throughout the region. Today BPA projections show a surplus of power for some time to come. We need not explore the reasons for this dramatic, unanticipated turnaround, but we must learn a lesson from it.

There is as much art as science in energy demand projections. When the U.S. economy recovers, or if a portion of our generation and transmission system becomes inoperative, we could again face shortages. The best way to meet this eventuality is to move expeditiously to develop regionwide conservation and alternative supplies. We should not simply sit smugly and wait for the next energy crunch to bail out all the WPPSS plants. Using one mess to rectify another would not be good public policy, and it would not conform to the intent of the regional power bill.

I am concerned as well about BPA's narrow, somewhat stingy approach to the provision of impact aid for States affected by BPA facilities. We all know that Montana State and county governments would have taken a very different view of the Colstrip transmission line had they not been promised substantial tax revenue from it. When BPA chose to construct that line in place of Montana Power Co., the State and counties were denied that revenue. At no time has BPA shown concern for this problem, other than to deny it has the authority to resolve it and to offer instead a wholly inadequate impact aid payment.

We in Congress have not been urged by BPA to correct the difficulty, so a significant source of controversy persists. I am aware that BPA is beginning to alter its relationship with the State of Montana. I understand that improved BPA-Montana relations have become a matter of high priority for BPA. In fact, in the shadow of these hearings, a substantial amount of progress has been made by BPA and State negotiators. I hope it continues. My colleagues in the Pacific Northwest delegation and I will continue to press BPA on these and other matters until the message gets through. We will support the Northwest Power Planning Council in its efforts to develop a regional energy plan and enhance fish habitat on the Columbia River system.

The days of secret planning, ignoring public comments and juggling numbers have to end. BPA must become a full, cooperating partner in regional energy decisions or, ultimately, Congress will take back from the agency everything it has been granted. I am seriously reviewing a number of legislative initiatives, including increased regional involvement in the development of BPA's annual budget. I am confident that this hearing will contribute to the refinement of those proposals. The record of this hearing will remain open for 45 days to permit additional written testimony, essential rebuttals, and time for witnesses to answer additional questions from the subcommittee.

I encourage witnesses to summarize their written testimony so we will have time for questions. The complete written statements will be included in the record. Our first witness is Mr. Keith Colbo, a Montana representative on the Northwest Power Planning Council. Keith, I'm happy to see you here today, and you may proceed in any manner that you wish.

STATEMENT OF KEITH COLBO, MONTANA REPRESENTATIVE, NORTHWEST POWER PLANNING COUNCIL

Mr. Colbo. For the record, my name is Keith Colbo. I'm a council member from the State of Montana for the Northwest Power Planning Council. Senator, it is a pleasure to be here this morning to discuss the implementation of the Pacific Northwest Electric Power Planning and Conservation Act of 1980. I will take advantage of the invitation to summarize the written testimony that I have previously submitted. It should take about 10 minutes.

In your letter regarding the hearing, you asked how the Northwest Power Planning Council might better be utilized to improve BPA's responsiveness to State concerns and what changes in law, if any, might enhance the council's ability to make BPA responsive. I believe first of all that the creation of the council has been a major step in providing a publicly accountable decisionmaking process to chart the region's energy future. During the past 16 months, we have held 25 meetings throughout the 4 States in the Pacific Northwest, hired staff, opened offices and initiated research studies. In addition, we have implemented a public involvement program and are about to announce a fish and wildlife program.

The council was set up to insure that BPA would be responsive to State concerns. Let me trace for you what the council is and what we have been doing as a backdrop for this hearing this morning. The council, as you know, is an eight-member body with two members appointed by each of the Governors in four of the Pacific Northwest States. The council's duties, simply put, are to draw up a plan for electrical energy development in the region and to review BPA's acquisitions to determine whether they are consistent with that plan. Bonneville must either follow the plan when acquiring resources to meet its obligations or else seek an act of Congress to supersede the plan. The council must also develop a program to protect, mitigate, and enhance fish and wildlife in the Columbia River Basin, while maintaining an adequate, efficient, economical and reliable power supply. The Congress gave the council 2 years to develop the regional power plan and 19 months to complete the fish and wildlife program.

The plan is to have two principal parts: A forecast of the power demand BPA must meet in the next 20 years and a supply plan for meeting those power demands. The fish and wildlife program will include measures to improve the stocks of fish and wildlife affected by the dams on the Columbia River system. I'd like to talk briefly about what we've been doing since the legislation was passed by Congress. The first meeting of the council was held on April 28, 1981. In the initial meetings the council spent much time listening to intensive briefings from BPA, the utilities, fish and wildlife interests and consumer groups.

We attempted to discover what the state of the art was in energy forecasting, conservation, and resource assessment. The council members, myself included, assumed that much of the study that was required for the development of the plan had already been done. Unfortunately, we were surprised. The state of the art had not advanced as far as we had expected. Within 2 years, the council must implement a regionwide mandate with few parallels in the Nation, a public, accountable planning process to guide a complex technological undertaking with annual revenues in the billions of dollars.

Not only must the regional energy plan propose a credible means for dealing with unprecedented uncertainties, but it must also honor the commitments embodied in the fish and wildlife program. This bold undertaking requires analysis that is accurate, cost-effective and timely. While this is by no means a simple task, the council believes the information and analytic tools it is acquiring will both support its planning process and pioneer methods of lasting usefulness to the region.

The guiding purposes of the regional energy plan are set forth in section 2 of the act: to encourage conservation and efficiency in the use of electric power, and the development of renewable resources within the Pacific Northwest; (2) to assure the Pacific Northwest of an adequate, efficient, economical and reliable power supply; and (3) to provide for the participation and consultation of the Northwest States, local governments, consumers, customers, users of the Columbia River System and the public at large within the region.

Two basic tools are needed to achieve these purposes: A load forecasting model and a comprehensive resource assessment. A notable feature of the forecasting efforts begun by the council is the openness of the analytic process. In June, the council staff released a working paper and a questionnaire in which the economic and demographic inputs to the council model were discussed and comments were solicited.

The development of complex forecasting models in the marketplace of ideas should return two benefits: analyses that are founded upon good information and analyses that are credible in the face of uncertainty. Both are sorely needed strengths. A demand forecast is half of a plan; the other half selects and schedules supplies of conservation and generating resources. A contractor is assembling a comprehensive data base describing conservation and resources in existence, under construction, or identified in the Northwest.

For each type of resource, information is being developed on its technical feasibility using current and new technologies, its economic feasibility, the major barriers and constraints to development of the resource and environmental impacts, including those to fish and wildlife. Information on the resource alternatives will be ranked according to the amount of energy that is available and its cost. This will facilitate selection of resources in accord with the act's cost-effectiveness criterion. Both utility and nonutility resources are being studied, and timetables provided for development.

One of the major things emerging from our work is that the Northwest electric power system faces a planning environment of unprecedented uncertainty. At the end of 1980, when the act was passed, the Pacific Northwest Utilities Conference Committee [PNUCC], projected that the Northwest would suffer a firm energy deficit in 1990 of 2,600 average megawatts if drought conditions occur. This is equivalent to the energy to serve more than two cities the size of Seattle. Within a year, the PNUCC had lowered its projected deficit to 600 megawatts and forecasts released since then indicate substantial surpluses in the region until the late 1980's or beyond.

Four regional forecasts have been released in 1982 illustrating the divergent expectations of analysts. The highest rate, 2.5 percent per year, is proposed by PNUCC, but even this number is sharply lower than the levels projected in recent years by the utilities. BPA estimates a growth rate of 1.7 percent per year over the next 20 years. The Washington Energy Research Center, in a study carried out for the Washington State Legislature, projects 1.5 percent annual growth. The lowest estimate comes from the Northwest Conservation Act Coalition, a consortium of citizen groups, in a study carried out in collaboration with the National Resources Defense Council.

The coalition argues that electric power consumption in the year 2000 in the Northwest could be no higher than the level reached in 1980. As the principal forum for planning at the regional level, the council has begun to articulate a philosophy for responding to these kinds of uncertainties. When projections by BPA and the utilities differ by 0.8 percent, there is a large range of real differences in expectations that must be taken seriously. In a regional network the size of the Northwest, a difference in demand growth rates of 0.3 percent per year produces projections that differ by the average output of a large thermal powerplant in just over a decade. It now takes longer than 10 years to build such a plant. Thus, the time required to put a multibillion-dollar investment in place is long enough that the need for these facilities cannot be ascertained with any degree of confidence. This, rather than ideological controversy, is the challenge facing the council and the region.

In the face of uncertainty, the region needs flexibility, the ability to make use of information throughout the time that a resource or conservation program is under development. Once a project is begun, irretrievable commitments are made, so flexibility is not free. But its costs can be managed by a sensible approach to resource planning. The uncertainties to be faced are real and the risk they pose can be managed more readily at the regional level than if utilities face these uncertainties unaided. The collaborative planning process being built by the council is one that can preserve the strengths of the regional power supply system by making use of these strengths to respond to the challenges before us.

The council will be working this fall to integrate all of the information that is being developed. We will be narrowing the issues and focusing on the major decisions that will go into our plan. We hope to complete action on the electrical energy demand forecast and a flexible resource plan to meet those needs before Christmas. The draft plan will be available the end of January. The council plans to hold public hearings throughout the region. These comments would be incorporated in the first official plan on or before April 28, 1983, our deadline.

I want to emphasize that our first plan is not likely to answer all the energy questions facing the region. We see a continuing role to improve information and monitor the implementation of the plan by BPA and the utilities. This ongoing effort is essential for the open planning process envisioned in the act to be realized. One of the most significant charges given to the council, as we mentioned, in the act is the development of a fish and wildlife program.

In fact, the first major action by the council was initiation of a process to seek recommendations for this program from the State and Federal fish and wildlife agencies and Indian tribes and other parties to provide recommendations by November 15, 1981. The Federal and State fisheries agencies responded by submitting 2,200 pages of recommendations and supporting documents to the council. The public hearings generated another 1,700 pages.

In the past 5 months, the council members and staff have been sifting through all this material to develop a comprehensive fish and wildlife program. The staff will be making a presentation to the council tomorrow in Portland on the proposed elements of the program. The council expects to discuss the staff proposals and adopt a draft program by September 16, 1982, in Helena.

Public hearings will be held in October and the final program will be adopted by November 15, 1982. Fish and wildlife in the Columbia River Basin, especially salmon and steelhead, have been substantially damaged by the development of the hydroelectric power system. Although the dams in the Columbia River Basin and its tributaries have provided decades of cheap and reliable power, the conversion from a natural flowing river to a series of reservoirs has had a profound effect on the fish and wildlife.

The draft fish and wildlife program proposed by the staff recognizes that fish and wildlife issues have not received equal consideration in the development and operation of the hydroelectric system in the past. This has created an adversarial relationship between fish and wildlife interests and the organizations that operate the power system and has led to administrative proceedings, lawsuits, and other confrontations. However, it is not at all clear that these confrontations have done very much to protect fish and wildlife in the basin. Given this history, the proposed draft includes a strong and continuing monitoring role for the council. Throughout the implementation of this program, the council would act as an arbiter of disputes to assure that fish and wildlife representatives have a seat at the table when important river operation decisions are made.

The proposed draft will not be a static document. Once a final program is adopted by the council, it will be subject to future amendment based on new information and monitoring. The council would establish a fish and wildlife research and implementation board to coordinate activities under the program. The board would provide a strong and continuing oversight role, in consultation with all fish and wildlife agencies, Indian tribes and Federal agencies that operate or regulate the hydroelectric dams. The draft proposes that the board be composed of four council members who would have the authority to develop research objectives, design specific research projects, prepare a comprehensive implementation plan and make recommendations to the full council. These are just highlights of specific guidelines of a draft program as we envision it today and will be discussing it tomorrow.

The plan will focus on the various life cycles of salmon and steelhead as they migrate to the ocean. I think the most significant and important measure is the creation of a water budget, a new concept for the region. This would be a volume of water controlled by the fish and wildlife agencies and Indian tribes to be used to help flush smolts down the river to the ocean. The water budget would be a hard constraint; that is, one that would not be violated, on the operation of the power system. This program would require the installation of systems to channel smolts around the power turbines. The draft program calls for immediate spills of water over the dams to provide passage until bypass systems are in place.

To improve the survival of salmon and steelhead in the ocean, the staff proposes immediate consultation with entities which have primary jurisdiction in ocean management. Until an agreement on salmon harvest levels is reached between the United States and Canada and until the fishing pressure on mixed natural and hatchery stocks is reduced off the coast of Alaska, Canada, Washington, Oregon, and California, the restoration of the Columbia River origin salmon and steelhead, especially naturally spawning upriver stocks, will be difficult and perhaps impossible.

In addition, the council's Columbia River enhancement program should be coordinated with the ocean harvest management plan being developed as part of the Salmon and Steelhead Conservation and Enhancement Act. To improve the upstream migration of returning adult salmon and steelhead, the draft program calls for the continuation or establishment of specific spill and flow guidelines, improvements in the operation of fish ladders and improvements in counting and monitoring returning adults. To compensate for damage caused by Columbia River Basin dams, the staff proposes the development of a comprehensive plan in consultation with the Salmon and Steelhead Advisory Commission to increase the production of natural and hatchery fish.

A primary objective would be to restore as many of the naturally spawning populations in the upriver tributaries as possible by removing barriers and improving stream habitat. The draft program also includes planting hatchery fish and healthy streams to reestablish natural runs of salmon and steelhead. To supplement these natural runs, the staff proposes measures to increase the production of hatchery fish. An important objective of the draft program, especially for the State of Montana which has no remaining salmon and steelhead runs, is the protection, mitigation, and enhancement of resident fish populations within the basin.

The draft program requires the development of specific flow regimes in the Flathead River, specific reservoir fluctuation limitations at Hungry Horse and Libby Dams and general provisions which establish criteria for the licensing of small-scale hydroprojects. The draft program would also establish a process to consider other measures to help Montana's resident fish. We hope that all parties would work together with the council to achieve the basic goals of the act, to protect, mitigate, and enhance the fish and wildlife in the region.

I do want to bring one area of concern to your attention. The council is concerned that Federal agencies may unnecessarily delay a key part of our fish and wildlife program, the implementation of a water budget to promote the survival of salmon and steelhead migrating to the ocean. BPA has told council staff that the National Environmental Policy Act [NEPA] process may delay the water budget for 2 years. That would mean the fishery flows may not be a hard constraint until the 1985–86 water year. Our staff first met with BPA in April on this matter. On July 7, 1982, the council sent a letter to BPA requesting that the BPA meet with the Bureau of Reclamation, the Army Corps of Engineers and other appropriate Federal agencies to take specific steps to coordinate the NEPA process with the development of the council's fish and wildlife program. Such a procedure is specifically contemplated by the Council on Environmental Quality.

In his August 9 response, Mr. Johnson stated that BPA would not begin to analyze the recommendations submitted to the council last fall. BPA would not consider the fish and wildlife improvement measures as proposals for Federal action because "priorities among the recommendations have not been established and for us to initiate a NEPA process on the entire package of recommendations, even it were doable, would lead to much unnecessary work." Thus, although BPA has undertaken one study and held one meeting with the other affected agencies on August 27, 1982, no other steps have been taken by Bonneville to expedite or advance the NEPA process despite numerous requests for BPA to do so. This inaction is a cause for considerable concern by council members.

At this point in time, the council is not seeking changes in the Regional Power Act. BPA, the utilities, fish and wildlife agencies, tribes and other organizations have all been responsive to the council's request for informaton. We expect this cooperation to continue through the development of the fish and wildlife program and the energy plan. I have mentioned our concerns about possible delays in the fish and wildlife program. However, we trust and we are hopeful that all parties will work together to insure prompt implementation of these programs.

In conclusion, Congress has given the council a challenging mission. I believe that we have made a good start in developing a publicly accountable, workable energy plan and fish and wildlife program. The process Congress initiated will not end with the completion of the first plan. We look forward to working with you and other Members of Congress as the council continues its efforts to provide enough energy to meet the region's needs at the lowest possible cost, while protecting the fish and wildlife and other valuable resources of the Pacific Northwest. Senator Baucus, I thank you for this opportunity and would entertain any questions.

Senator BAUCUS. Thank you very much, Keith. I want to compliment you and other members of the council for the work you're undertaking. I know it's a nearly impossible task. It's difficult working with various agencies and it's a very difficult subject area. I feel you've done a very good job and I want to compliment you on the effort. I have a couple of questions.

Did the council experience any difficulties because of insufficient funds? Has that been a problem at all?

Mr. COLBO. For the council at this point, no, I don't believe so.

Senator BAUCUS. Do you anticipate any problems along those lines?

Mr. COLBO. I think very much depends on, first of all, the implementation efforts following the adoption of the plan; what additional information might be needed if the plan is amended in future years. I think the limits established within the act are insufficient to cover those needs. It's simply a matter for the council to redefine its level of effort following adoption.

Senator BAUCUS. You mentioned that you found the cooperation of other Federal agencies to be fairly good. I'm wondering with respect to an agency that deals with fish habitat, energy and fish habitat in the Pacific Northwest, have you found that the agencies have been cooperative?

Mr. COLBO. The agencies have been very cooperative, but like, I think, our request for energy information in our initial studies, we found that where we assumed there was a great deal of information, there was not. Where we find the information, we found it often conflicting and incomplete.

Senator BAUCUS. Where did you assume there would be a lot of information?

Mr. COLBO. Particularly with regard to the salmon and steelhead runs, that the Federal and State agencies had done more research, could support their contentions with regard to the mortalities, instream and ocean survival, those kinds of things. We found that the research was just inconclusive. There were great gaps that had not been filled that we assumed had been done a long time ago.

Senator BAUCUS. Sometimes I've had troubles dealing with the Corps of Engineers. Have you found them to be as cooperative or less cooperative than other agencies? I'm just curious what your experience has been, because mine sometimes is that they have not been as forthright as I had hoped them to be.

Mr. COLBO. I know to what you're referring. I've had problems in previous dealings of the same kind. I would say very quickly that our dealings with the corps to this point as it relates to the fish and wildlife program have been excellent. We've been dealing with General Van Loben Sels and his communication has been——

Senator BAUCUS. I'll have you get our information then.

Mr. COLBO. All right.

Senator BAUCUS. Does the council have any role at this time in the development of BPA's annual budget?

Mr. COLBO. At this point, we do not.

Senator BAUCUS. None whatsoever?

Mr. COLBO. No.

Senator BAUCUS. Could you just briefly provide an overview of the alternate roles the council may take with respect to the adoption of a fish plan and regional energy plan. Are there some alternative roles the council is looking at?

Mr. COLBO. I think——

Senator BAUCUS. I understand that the council is currently reviewing a variety of alternative roles for the council—for council activity after adoption of the fish plan and the energy plan. Could you provide an overview of those?

Mr. COLBO. There have been those who have presented the council with the alternative of being very active; more or less a very heavy enforcement kind of role. The council has, I think, although I'm not adopting formal policy, viewed itself as a body to seek confidence within the region of the various players in dealing with the energy program and dealing with the fish and wildlife program. We may fail in this.

We've attempted very hard during the past 16 months to place ourselves in that position, to establish our credibility so that we might provide that kind of role. I think the council chairman, and I certainly concur, feels that our most positive influence would be to serve in that kind of environment where none has existed before, to get these parties together, and the best example I think is the fisheries program. There have been a lot of tenuous situations in the past between the Indian tribes and the operating agencies. We hope to be able to get them together. That's the only way that we see that the resource is going to be restored. No amount of lawsuits has benefited the resource to this point.

Senator BAUCUS. Keith, thanks a lot. I know you have a plane to catch. I appreciate your coming.

Mr. COLBO. Thank you.

Senator BAUCUS. And I also know that some have questions whether money spent for the council is money well spent. I for one think it's money well spent and I also think it's very important that the States have a very direct role in the development of BPA's plans and how BPA affects the States, not only our State, but other Pacific Northwest States and I'll make your annual report, when it's available, part of the hearing record as well. I certainly will. Thank you.

[The prepared statement of Mr. Colbo follows:]

PREPARED STATEMENT OF KEITH COLBO

Senator Baucus, it is a pleasure to be here this morning to discuss the implementation of the Pacific Northwest Electric Power Planning and Conservation Act of 1980.

In your letter regarding this hearing you asked how the Northwest Power Planning Council might better be utilized to improve BPA's responsiveness to state concerns, and what changes in law, if any, might enhance the Council's ability to make BPA responsive.

I believe that the creation of the Council has been a major step in providing a publicly accountable decisionmaking process to chart the region's energy future. During the past 16 months, we have held 25 meetings throughout the four states in the Pacific Northwest; hired staff; opened offices; and initiated research studies. In addition, we are in the process of implementing a public involvement program and developing a fish and wildlife program.

The Council was set up to insure that BPA would be responsive to state concerns. Let me trace for you what the Council is and what we have been doing.

The Council is an eight-member body with two members appointed by each of the Governors of the four Pacific Northwest states. The Council's duties, simply put, are to draw up a plan for electrical energy development in the region, and to review BPA's acquisitions to determine whether they are consistent with that plan. Bonneville must either follow the plan when acquiring resources to meet it obligations, or else seek an Act of Congress to supersede the plan. The Council must also develop a Program to protect, mitigate, and enhance fish and wildlife in the Columbia River Basin while maintaining an adequate, efficient, economical and reliable power supply.

The Congress gave the Council two years to develop the Regional Power Plan, and 19 months to complete the Fish and Wildlife Program. The Plan is to have two principal parts: a forecast of the power demand BPA must meet in the next 20 years, and a supply plan for meeting those power demands. The Fish and Wildlife Program will include measures to improve the stocks of fish and wildlife affected by the dams on the Columbia River system.

Given the complexity of the electrical energy situation in the Pacific Northwest and the short time frame provided for the development of the first plan, the Council does not see the plan as a static document. The Council will almost certainly need to amend it from time to time, and is required under the Act to review the plan at least every five years.

I'd like to talk briefly about what we've been doing since the legislation passed the Congress.

Between January and April of 1981, the Legislatures of Idaho, Montana, Oregon, and Washington each passed legislation authorizing participation on the Northwest Power Planning Council and establishing procedures for the appointment of Council representatives.

The first meeting of the Council was held on April 28, 1981. During that meeting, Daniel J. Evans of Washington was elected Chairman and Robert Saxvik of Idaho was elected Vice Chairman. I was appointed Chairman of the Personnel Committee.

The Council spent much time during its early meetings listening to intensive briefings from BPA, the region's utilities, fish and wildlife interests, and consumer groups. We attempted to discover what the state-of-the-art was in energy forecasting, conservation and resource assessment, power system operations, and fish enhancement.

I think many of the Council members, myself included, had assumed that most of the studies required for the development of the plan had already been done. We wanted to learn from the experts and make sure that we did not duplicate work if reliable information already existed.

Unfortunately, the state-of-the-art had not advanced as far as we had expected. The Council was disappointed to find that most of the energy forecasting models being used in the region did not utilize end-use techniques--this new approach allows a policy maker to more accurately predict the effects of conservation programs. We found that many of the assumptions that went into energy forecasts did not seem reasonable. We learned that Bonneville and most of the region's utilities were in the very early stages of developing conservation programs; and where modest conservation programs were in place, there was little empirical data on how much energy was being saved.

After the briefings, the Council turned quickly to the development of a work plan for the preparation of the regional plan.

Regional Energy Plan

Within two years, the Council must implement a regionwide mandate with few parallels in the nation: a public, accountable planning process to guide a complex technological undertaking with annual revenues in the billions of dollars. Not only must the regional energy plan propose a credible means for dealing with unprecedented uncertainties, but it must also honor the commitments embodied in the fish and wildlife program. This bold undertaking requires analysis that is accurate, cost-effective, and timely. While this is by no means a simple task, the Council believes the information and analytic tools it is acquiring will both support its planning process and pioneer methods of lasting usefulness to the region.

The Council has commissioned six major studies and several additional reports of more modest scope. Final reports from contractors will be delivered to the Council in September.

The Council chose to retain the services of contractors to develop many of the models and data bases it will use in writing the regional plan. This choice is dictated by four considerations: 1) the extremely compressed time schedule for completion of the plan requires a large and diverse staff, which is impractical to hire on an in-house basis, even if this was desirable; 2) in several areas, such as demand forecasting, contractors available in the national market possess both state-of-the art capabilities and familiarity with the unique features of the Northwest power system; 3) quality assurance and review was assured through the oversight capabilities of Council members, Council professional staff, and the Scientific and Statistical Advisory Committee, and 4) the Council in any case retains final control over all policy decisions and all elements of the Fish and Wildlife Program and the regional Energy Plan.

The guiding purposes of the regional energy plan are set forth in Section 2 of the Act:

(1) to encourage, through the unique opportunity provided by the Federal Columbia River Power System —
  (A) conservation and efficiency in the use of electric power, and
  (B) the development of renewable resources within the Pacific Northwest;
(2) to assure the Pacific Northwest of an adequate, efficient, economical and reliable power supply;
(3) to provide for the participation and consultation of the Pacific Northwest States, local governments, consumers, customers, users of the Columbia River System...and the public at large within the region.

Two basic tools are needed to achieve these purposes: a load forecasting model and a comprehensive resource assessment. A 20-year demand forecast is explicitly required by Section 4(e)(3)(D), and a resource assessment is the basic data base upon which the cost-effectiveness and priority criteria set forth in Sec. 4(e)(1) are to be implemented.

Surprisingly, neither of these basic tools was available to the Council on the time schedule required by the Act. Although the Bonneville Power Administration has served a coordinating role in the region for more than four decades, it has not had the comprehensive planning mandate created in the Regional

Power Act. Thus BPA had not carried out a regional load forecast; the closest approximation, the annual West Group Forecast complied by PNUCC, has relied upon individual utilities to do independent projections. These techniques worked satisfactorily in the era when the federal hydro system and utilities' own projects provided abundant electric power. But the uncertainties of the last several years require a comprehensive, systematic regional approach.

A notable feature of the forecasting efforts begun by the Council is the openness of the analytic process. In June, the Council staff released a working paper and an accompanying questionnaire, in which the economic and demographic inputs to the Council model were discussed and comments were solicited. The development of complex forecasting models in the marketplace of ideas should return two benefits: analyses that are founded upon good information, and analyses that are credible in the face of uncertainty. Both are sorely needed strengths.

A demand forecast is half of a plan; the other half selects and schedules supplies of conservation and generating resources. A contractor is assembling a comprehensive data base describing conservation and resources in existence, under construction, or identified in the Northwest. For each type of resource, information is being developed on its technical feasibility using current and new technologies; its economic feasibility; the major barriers and constraints to development of the resource; and environmental impacts, including those to fish and wildlife.

Information on the resource alternatives will be ranked according to the amount of energy that is available, and its cost. This will facilitate selection of resources in accord with the Act's cost-effectiveness criterion. Both utility and non-utility resources are being studied, and timetables provided for development.

A major focus of the Council's research is in the area of energy conservation — the more efficient use of energy we already have. The economic advantages of conservation must be seen against the novelty of conservation as a utility planning alternative. Guided by the Act's emphasis on conservation and renewable resources, the Council decided to undertake studies specifically designed to clarify the contributions that can be anticipated from these resources and to overcome barriers to their implementation.

The Council is examining institutional actions which can promote the development of cost-effective, high-priority resources. Penetration or compliance rates are being evaluated, so that the Council can assess the potential levels of conservation and resource development likely to occur, taking into account the behavior of consumers and resource developers.

The Council is also working to identify alternative model conservation standards as required by Sec. 4(f) of the Act. These standards would apply to new and existing structures, conservation programs, and other consumer actions aimed at more efficient use of energy. The standards will reflect geographic and climatic differences within the region, and are aimed at achieving all electricity savings and peak load reductions which are cost-effective for consumers, taking into account the financial assistance available to consumers under the Act.

Section 9(j)(1) of the Act assigns the Council responsibility to develop recommendations on the design of retail rates aimed at conserving energy. The Council is developing information to identify and evaluate impacts of alternative rate structures upon electricity consumption in the region. We will then consider recommendations for rate designs that can encourage efficient use of electric energy and the development of customer-owned renewable resources.

The Council is also conducting several special studies.

With its heavy reliance on hydropower, the Pacific Northwest electric generating system is unique in a technological sense. As the region evolves beyond its hydro base, the planning assumptions used to assure reliable electric power supply need to be reexamined. The Council is looking at how the hydroelectric dams in the region are operated. We want to see if there are ways to get more energy out of existing dams and to use more of that energy in the Pacific Northwest. Critical water planning, reserve margins, regional power interchanges, firming of hydro, and the value of reliability to consumers are being analyzed.

Section 3(4)(B) of the Act requires that analyses of the cost of resources designated in the plan include "such quantifiable environmental costs and benefits as...are directly attributable to such measure or resource." We are developing a consistent method for the assessment of environmental costs and benefits for various resources. Both routine and accidental impacts are being studied.

Several additional special studies have also been commissioned by the Council:

- Fuel switching. An examination of a potential for encouraging consumers to change from electricity to another fuel (natural gas or oil) as a program measure.
- Price forecasts. An evaluation of projections of the price of oil, natural gas, and coal over the 20-year horizon of the Council plan.
- Options. A study of the feasibility of sequencing and defining the decisions to acquire a new resource so as to enhance flexibility and to reduce lead time for actual production of power or conservation savings.
- Aluminum-ingot storage. A study of the possibility of stockpiling aluminum production during periods of abundant water and low aluminum demand, for resale during periods of low water.
- Price elasticity. A comparison of consumer behavior in other regions where electric rates have increased rapidly.
- Monitoring. Methods for monitoring and managing the implementation of the plan.

One of the major themes emerging from our work is that the Northwest electric power system faces a planning environment of unprecedented uncertainty. At the end of 1980, when the Act was passed, the PNUCC projected that the Northwest would suffer a firm energy deficit in 1990 of 2600 average megawatts if drought conditions occur -- this is equivalent to the energy to serve more than two cities the size of Seattle. Within a year, the PNUCC had lowered its projected deficit to 600 megawatts and forecasts released since then indicate substantial surpluses in the region until the late 1980s or beyond.

This dramatic and unexpected change is the result of two forces. First, the national economic recession has hit the region hard, depressing output and investment. Even with the anticipated resumption of economic growth, increases in physical output -- and consumption of electricity -- will grow on a delayed path. The second, quantitatively more important effect is the impact of higher prices, which induces more efficient use of energy. Although the sharply rising cost of generating power has been well known within the utility community for more than a decade, the degree to which consumers would respond with lower consumption has only come to be recognized in the region since the passage of the Regional Power Act.

Four regional forecasts have been released in 1982, illustrating the divergent expectations of analysts. The highest rate, 2.5 percent per year, is proposed by PNUCC, but even this number is sharply lower than the levels projected in recent years by the utilities. BPA estimates a growth rate of 1.7 percent per year over the next 20 years. The Washington Energy Research Center, in a study carried out for the Washington State Legislature, projects 1.5 percent annual growth. The lowest estimate comes from the Northwest Conservation Act Coalition, a consortium of citizen groups, in a study carried out in collaboration with the National Resources Defense Council. The Coalition argues that electric power consumption in the year 2000 in the Northwest could be no higher than the level reached in 1980.

As the principal forum for planning at the regional level, the Council has begun to articulate a philosophy for responding to these uncertainties. When projections by BPA and the utilities differ by 0.8 percent, there is a range of real differences in expectations that must be taken seriously. In a regional network of the size of the Northwest, a difference in demand growth rates of 0.3 percent per year produces projections that differ by the average output of a large thermal power plant in just over a decade; it now takes longer than 10 years to build such a plant. Thus, the time required to put multi-billion dollar investments in place is long enough that the need for these facilities cannot be ascertained with confidence. This, rather than ideological controversy, is the challenge facing the Council and the region.

In the face of uncertainty the region needs flexibility, the ability to make use of information throughout the time that a resource or conservation program is under development. Of course, once a project is begun, irretrievable commitments are made, so flexibility is not free. But its costs can be managed by a sensible approach to resource planning.

The challenge of uncertainty is hardly novel in an economy based in entreprenurial risk-taking. Investors typically diversify their portfolios, so that risky investments are combined with ones that are safer but promise a lower return. Although the gain from such a balanced portfolio is not maximized, the risk of loss can be controlled at a reasonable cost.

Flexibility in resource selection and monitoring of plan implementation represent major departures from established practice in the regional utility industry. The Council believes, however, that they are constructive additions to the ability to cope with uncertainty in the region -- just as the Congressionally mandated priority accorded conservation reflects a new but positive and achievable response to higher generating costs. The uncertainties to be faced are real, and the risks they pose can be managed more readily at the regional level than if utilities face these uncertainties unaided. The collaborative planning process being built by the Council is one that can preserve the strengths of the regional power supply system by making use of these strengths to respond to the challenges before us.

The Council will be working this fall to integrate all of the information that is being developed. We will be narrowing the issues and focusing on the major decisions that will go into our plan.

We hope to complete action on the electrical energy demand forecast and a flexible resource plan to meet those needs before Christmas. The draft plan throughout the region. These comments will be incorporated into the first official plan on or before April 28, 1983.

I want to emphasis that our first plan is not likely to answer all the energy questions facing the region. We see a continuing role for the Council to improve information and monitor the implementation of the plan by BPA and the utilities. This ongoing effort is essential if the open planning process envisioned in the Act is to be realized.

Fish and Wildlife Plan

One of the most significant charges given to the Council by the Act is the development of the fish and wildlife program. In fact, the first major action by the Council was the initiation of the process to seek recommendations for this program from state and Federal fish and wildlife agencies, Indian Tribes, and other parties to provide recommendations by November 15, 1981.

On January 11, 1982, the Council announced the availability of these documents for public review. During March, five days of public hearings were held at locations throughout the Columbia Basin. The comment period closed on April 1, 1982.

The Federal, state and tribal fisheries agencies submitted 2200 pages of recommendations and supporting documents to the Council. The public hearings generated another 1700 pages. During the past five months, Council members and staff have been sifting through all this material to develop a comprehensive Fish and Wildlife Program.

The staff will be making a presentation to the Council tomorrow in Portland on proposed elements of the Program. The Council expects to discuss the staff proposals and adopt a draft program on September 16, 1982 in Helena. Public hearings will be held in October and the final Program will be adopted by November 15, 1982.

Fish and wildlife in the Columbia River Basin, especially salmon and steelhead, have been substantially damaged by the development of the hyroelectric power system. Although the dams in the Columbia River Basin and its tributaries have provided decades of cheap and reliable power, the conversion from a natural flowing river to a series of reservoirs has had a profound effect on fish and wildife.

The Draft Fish and Wildlife Program proposed by the staff recognizes that fish and wildlife issues have not received equal consideration in the development and operation of the hydroelectric system in the past. This has created an adversarial relationship between fish and wildlife interests and the organizations that operate the power system, and has led to administrative proceedings, law suits, and other confrontations. However, it is not clear that these confrontations have done very much to protect fish and wildlife in the Basin.

Given this history, the proposed draft includes a strong and continuing monitoring role for the Council. Throughout the implementation of this program, the Council would act as an arbiter of disputes to assure that fish and wildlife representatives have a seat at the table when important river operation decisions are made. It is our hope that all parties will work together with the Council to achieve the goal of the Northwest Power Act.

The Act clearly directs the Council to initiate a new era, balancing the needs of fish and wildlife with the operation of the hydroelectric system. Sec. 4(h) requires the Council to develop and adopt a program "to protect, mitigate and enhance fish and wildlife, including related spawning grounds and habitat on the Columbia River and its tributaries, while maintaining an adequate, efficient, economical and reliable power supply."

Congress directed the Council to request recommendations from the region's fish and wildlife agencies and Columbia River Basin Indian tribes for measures to address the damage caused by Columbia River Basin dams. The recommendations have varied considerably in detail, substance, and supporting information. At this time the staff is recommending adoption of those measures that were well-conceived, contained sufficient detail and were based on the best available scientific knowledge. Some recommendations will be implemented subject to further Council review of additional information or further study and the staff is recommending that some measures be rejected because they do not meet the statutory criteria.

The proposed program would be coordinated with the development of a comprehensive ocean harvest management and Columbia River enhancement plan being prepared by the Salmon and Steelhead Advisory Commission pursuant to the Salmon and Steelhead Conservation and Enhancement Act of 1980 (P. L. 96-561).

The proposed draft is not intended to be a static document. Once a final program is adopted by the Council it will be subject to future amendment based on new information and monitoring. The Council would establish a Fish and Wildlife Research and Implementation Board to coordinate activities under the Program. The Board would provide a strong and continuing oversight role, in consultation with all fish and wildlife agencies, Indian tribes and federal agencies that operate or regulate the hydroelectric dams. The draft proposes that the Board be composed of four Council members, who would have the authority to develop research objectives, design specific research projects, prepare a comprehensive implementation plan, and make recommendations to the full Council. Advisory Committees could be created, to the extent desirable, to provide scientific and technical assistance.

The fish and wildlife of the Columbia River Basin and its tributaries have tremendous economic and cultural importance to the citizens of the Pacific Northwest. Consideration of the Draft Program represents a first step to assure the protection, mitigation and enhancement of these valuable resources.

SALMON AND STEELHEAD

Downstream Migration

The program focuses on each of the life cycle stages, starting with measures which would improve the survival of juvenile salmon and steelhead as they migrate to the ocean. As juvenile fish--called smolts--migrate to the ocean they must pass through or over as many as nine dams. Factors which affect smolt survival are 1) travel time through the reservoirs -- if smolts are delayed it affects their ability to adjust to salt water; 2) death or injury as smolts travel through power turbines; and 3) predators that feed on the smolts. The proposed program would establish a combination of measures to improve downstream migration.

The most important measure is the creation of a water budget. This would be a volume of water controlled by the fish and wildlife agencies and Indian tribes to be used to help flush smolts down the river to the ocean. The water budget would be a hard constraint (that is, one that would not be violated) on the operation of the power system.

Second, the program would require the installation of systems to channel smolts around the power turbines. The Draft Program calls for immediate spills of water over the dams to provide passage until bypass systems are in place.

Ocean Survival

To improve the survival of salmon and steelhead in the ocean, the staff proposes immediate consultation with the following entities which have primary jurisdiction in ocean management: 1) the Pacific Fishery Management Council, 2) the North Pacific Fishery Management Council, 3) the U.S. State Department, 4) the Canada Department of Fisheries and Oceans, and 5) the Salmon and Steelhead Advisory Commission, established pursuant to P. L. 96-561.

Until an agreement on salmon harvest levels is reached between the United States and Canada and until the fishing pressure on mixed natural and hatchery stocks is reduced off the coast of Alaska, Canada, Washington, Oregon and California, the restoration of Columbia River-origin salmon and steelhead, especially naturally spawning upriver stocks, will be difficult and perhaps impossible.

In addition, the Council's Columbia River enhancement program should be coordinated with the ocean harvest management plan being developed as part of the Salmon and Steelhead Conservation and Enhancement Act.

Upstream Migration

To improve the upstream migration of returning adult salmon and steelhead, the Draft Program calls for the continuation or establishment of specific spill and flow guidelines, improvements in the operation of fish ladders and improvements in counting and monitoring returning adults.

Increased Production

To compensate for damage caused by Columbia River Basin Dams, the staff proposes the development of a comprehensive plan, in consultation with the Salmon and Steelhead Advisory Commission, to increase the production of natural and hatchery fish.

A primary objective would be to restore as many of the naturally spawning populations in the upriver tributaries as possible by removing barriers and improving stream habitat. The Draft Program also includes planting hatchery fish in healthy streams to reestablish natural runs of salmon and steelhead.

To supplement natural runs, the staff proposes measures to increase the production of hatchery fish. The Draft Program would require the development of a basinwide inventory of existing hatchery sites and would examine new hatchery sites. In coordination with the comprehensive plan developed by the Council and the Salmon and Steelhead Advisory Commission, the program would provide funding for the construction and operation of facilities on the Umatilla Reservation and at the John Day Dam, and for the reestablishment of runs in the Yakima River Basin. A primary goal of the Draft Program would be to encourage the development of low capital salmon and steelhead production facilities.

RESIDENT FISH

An important objective of the Draft Program, especially for the state of Montana which has no remaining salmon and steelhead runs, is the protection, mitigation and enhancement of resident fish populations within the Basin. The Draft Program requires the development of specific flow regimes in the Flathead River, specific reservoir fluctuation limitations at Hungry Horse and Libby Dams and general provisions which establish criteria for the licensing of small-scale hydroprojects. The Draft Program would also establish a process to consider other measures to help resident fish.

WILDLIFE

A primary objective is to improve the understanding of the extent of hydroelectric system effects on wildlife populations, including upland game, birds of prey, waterfowl and other species. The Draft Program establishes initial measures to protect, mitigate and enhance wildlife resources in the Basin and establishes a process for a comprehensive wildlife resource inventory.

INSTITUTIONAL ARRANGEMENTS

The Draft Program recognizes that new institutional arrangements must be developed to assure a new spirit of cooperation between power system managers and fish and wildlife management entities. The Act envisioned the coequal treatment of fish and wildlife resources in power system decision-making. In the past, because of the adversarial nature of many of the proceedings involving the fish and wildlife agencies, the tribes and Federal agencies operating or regulating the hydroelectric system, effective communication and understanding has been limited. The Council would foster improved communication and understanding of each group's problems and provide a forum for settlement of disputes which arise in the course of implementing the Fish and Wildlife Program. We hope that all parties would work together with the Council to achieve the basic goals of the Act, to protect, mitigate and enhance the fish and wildife in the region.

I do want to bring one area of concern to your attention. The Council is concerned that Federal agencies may unnecessarily delay a key part of our Fish and Wildlife Program -- the implementation of a water budget to promote the survival of salmon and steelhead migrating to the ocean.

BPA has told Council staff that the National Environmental Policy Act (NEPA) process may delay the water budget for two years. That would mean that fishery flows may not be a hard constraint until the 1985-1986 water year.

Our staff first met with BPA in April on this matter. On July 7, 1982 the Council sent a letter to BPA Administrator Peter Johnson requesting him to meet with the Bureau of Reclamation, the Army Corps of Engineers and other appropriate Federal agencies to take specific steps to coordinate the NEPA process with the development of the Council's Fish and Wildlife Program. Such a procedure is specifically contemplated by the Council on Environmental Quality.

In his August 9th response, Mr. Johnson stated that BPA would not begin to analyze the recommendations submitted to the Council last fall. BPA would not consider the fish and wildlife improvement measures as proposals for federal action because "priorities among the recommendations have not been established and for us to initiate a NEPA process on the entire package of recommendations, even if it were doable, would lead to much unnecessary work."

Thus, although BPA has undertaken one study and held one meeting with other affected agencies on August 27, 1982, no other steps have been taken by Bonneville to expedite or advance the NEPA process despite numerous requests for BPA to do so. This inaction is a cause for considerable concern by Council members.

Public Information and Involvement

The Regional Power Act was born in controversy: the changing conditions of electric power in the Northwest had stimulated public concern on issues ranging from differences in the rates charged consumers served by public and investor-owned utilities to the declining salmon runs in the region's rivers. For this reason the Act directs, in Sec. 4(g), both the Council and BPA "To insure widespread public involvement in the formulation of regional power policies."

There is also a practical reason for an aggressive commitment to public involvement. The changing economics of power supply has increased the importance of both conservation and renewable resources in the future supply mix. Conservation and some renewable resources are, however, intrinsically decentralized sources of energy. The initiation, adoption, operation, and maintenance of these resources depends upon the actions of large numbers of individual resource owners. Therefore public involvement, including the coordination of effective policies at the local government level, is indispensable to the timely implementation of the Act. The Council has taken its public involvement mandate seriously from the outset, with efforts to inform the people of the region of the Council's work, to solicit public views, and to undertake explicit consultation with the utilities, governmental agencies, and Indian tribes most directly affected by the Council's planning process.

The Council has also provided public information through publications. A brochure describing the Act and the work of the Council has been widely distributed. A monthly newsletter, written by Council staff, is being published and sent to over 7,000 organizations and individuals in the region. Finally, the Council's central office library serves as a reading room for the reports of contractors performing studies for the Council, the fish and wildlife recommendations, and other major documents. Documents have also been provided to those requesting copies at cost.

In order to stimulate active involvement, the Council has also undertaken outreach efforts. The Council meetings themselves, held approximately twice per month, have been conducted in open session in locations throughout the Northwest. Each meeting includes an opportunity for public comment, and these times have been used by a wide range of speakers.

Council members and staff have also served as an informal speakers bureau, with appearances in numerous places, including editorial boards, service clubs, and public meetings and conferences.

In April and May of 1982 the Council sponsored Town Hall Meetings on regional power issues in 22 locations throughout the Northwest. The meetings were planned by the state staff and Council members from each state. Although formats varied, all the town hall meetings were widely publicized and well attended.

The Act also calls for the Council to consult with the utility and industrial customers of BPA and the state, federal, and tribal agencies affected by the fish and wildlife program. The consultation process for the Fish and Wildlife Program was formalized through a notice published in the Federal Register. An informal but systematic consultation with the utility and industrial customers of BPA was launched late in 1981.

Perhaps the most regularized consultation process is that represented by the voluntary Scientific and Statistical Advisory Committee (SSAC) authorized in Sec. 4(c)(11). Because of the broad spectrum of questions facing the Council, the SSAC was created as a large body of advisers organized into subcommittees responsible for conservation, fish and wildife, forecasting, reserves and reliability, and resource assessment. There are sixty-six members on the advisory committee representing utilities, consumers, the business community, fish and wildlife organizations, Indian tribes and state and local governments from the four Northwest states.

Conclusion

At this point, the Council is not seeking changes in the Regional Power Act. BPA, the utilities, fish and wildlife agencies, tribes and other organizations have all been responsive to the Council's request for information. We expect this cooperation to continue through the development of the Fish and Wildlife Program and Energy Plan. I have mentioned our concerns about possible delays in the Fish and Wildlife Program. However, we trust and are hopeful that all parties will work together to insure prompt implementation of these programs.

In conclusion, Congress has given the Council a challenging mission. I believe that we have made a good start in developing a publicly accountable, workable Energy Plan and Fish and Wildlife Program. The process Congress initiated will not end with the completion of the first Plan. We look forward to working with you and other members of Congress as the Council continues its efforts to provide enough energy to meet the region's needs at the lowest possible cost, while protecting the fish and wildlife and other valuable resources of the Pacific Northwest.

Senator BAUCUS. Our next witness is Mr. Peter Johnson, the Administrator of the Bonneville Power Administration. Mr. Johnson, we welcome you to Helena and I want to thank you for all the time you're taking here in Montana these few days. I know you were in Missoula a couple of days ago and I appreciate your time and effort and presence here as well. I see you have a lengthy statement. If you could summarize that as much as possible it would help us move right along here, and your full statement will be part of the record anyway.

STATEMENT OF PETER T. JOHNSON, ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION, ACCOMPANIED BY OMAR HALVORSON, ASSISTANT GENERAL COUNSEL; JERRY FRICK, PROJECT MANAGER AND ENGINEERING MANAGER; AND WALTER POLLOCK, ASSISTANT POWER MANAGER

Mr. JOHNSON. Thank you, Senator. It's a pleasure to be here today. I will move through my prepared testimony expeditiously. However, I think everything in there is pertinent to the questions you've raised in the correspondence we've seen. My name is Peter Johnson, the Administrator of the Bonneville Power Administration, an entity of the Department of Energy. Several members of the Bonneville staff are with me here today. They will respond to questions you may have in specific areas. Seated with me here are Mr. Omar Halvorson, assistant general counsel for BPA; Mr. Jerry Frick, project manager for the Colstrip transmission construction program and engineering manager for the Bonneville Power Administration; and Walter Pollock, assistant power manager of our Office of Power and Management Resources.

I am pleased to have this opportunity to appear before you to discuss BPA's program and activities. It is a pleasure to inform you on the status of our program, the problems we have encountered, and the progress that we have made toward solutions.

In my statement today, I will highlight our progress in improving our working relationships with the State of Montana and tell you how BPA is responding to a number of legitimate concerns about the construction of the Colstrip transmission facilities. We are keenly aware of the social as well as the physical impacts these transmission facilities are having upon the people of Montana and upon the Federal/State relations. We are making every effort to respond to these concerns as they have been expressed by Montana's public officials, local communities, individual landowners and the general public as well.

CONGRESSIONAL AUTHORIZATION TO CONSTRUCT THE COLSTRIP TRANSMISSION

At this point I believe it would be useful to review briefly the congressional authorities under which the Bonneville Power Administration was given responsibility for planning and developing this transmission project. BPA's acceptance of its present role resulted from a 1977 request from the Montana Power Co. and other participants in the Colstrip Generating Units 3 and 4 asking Bonneville to exercise its authority to construct transmission facilities under the

Federal Columbia River Transmission System Act of 1974. Section 4 of this act provides that the Bonneville Power Administration shall construct transmission additions and replacements needed to (1) integrate and transmit electric power from existing or additional Federal or non-Federal generating units and (2) provide interregional transmission facilities.

Based on this existing authority, the Congress passed House Joint Resolution 1139 in October of 1978, which ultimately became Public Law 94–482. It provided for the construction of facilities to integrate new generating facilities at Colstrip, Mont., into the Bonneville transmission grid.

CRITICAL IMPORTANCE OF COLSTRIP TRANSMISSION

Electric loads in the Pacific Northwest are growing at a slower rate than was predicted in the load projections of the 1970's. This rate of growth and the lower forecasts that are being made for future years have prompted many persons to question the need for generating resources and transmission facilities scheduled for construction in the next 10 years.

I wish to emphasize here today that the Pacific Northwest faces significant deficits of energy in the late 1980's and early 1990's. The Colstrip generating resources and the Colstrip transmission lines, without which the electricity produced cannot be conveyed to load centers, have figured prominently in every analysis of resource and transmission requirements made in recent years.

Without Colstrip Generating Units 3 and 4, the region under some forecasts would face deficits of firm power as early as 1983. In other words, without Colstrip Units 3 and 4, we would go from a surplus to a deficit situation.

All of the studies made have assumed that Colstrip Units 3 and 4 will come on line as scheduled. Our analyses indicate also that Colstrip Units 3 and 4, which are now approaching the final stages of construction, will be cost-effective. Any delays in their construction will surely increase the long-range costs of power required to serve the loads throughout the Pacific Northwest.

In addition to transmitting the output of Colstrip Generating Units 3 and 4, and this is an area, Senator, that I think is extremely important and it's not fully understood—Colstrip transmission facilities will strengthen the transmission system within Montana in that outages and loss of load will be reduced. Reliability of service will be improved, for example, for Missoula, Anaconda, Great Falls, and their surrounding areas. Additional transmission will be available for emergency power transfers of various kinds.

A significant portion of the output from Colstrip Units 3 and 4, which have a rated capacity totaling 1,400 megawatts, will go to consumers within the State. Two investor-owned utilities who are participating in the construction of these generating units, the Montana Power Co. and Pacific Power & Light Co., serve retail users of electricity in Montana. We estimate that the Colstrip lines will supply 560 megawatts for the Montana loads of these two companies. Present loads of Pacific Power in northwestern Montana are being served from the west coast by generation that includes the large coal-fired generating plant at Centralia, Wash., which is just south of Seattle. Power is transmitted into the State of Montana from coal-fired generation.

Recent discussions between the Western Area Power Administration [WAPA] and the Bonneville Power Administration have focused on benefits of Colstrip transmission to WAPA and its ten utility customers in the eastern part of the State. The Bonneville staff members have been meeting with WAPA planners to discuss the differences in streamflows and operations of the Columbia and the Missouri hydro systems. These differences will permit exchanges and sales of power between WAPA and the Bonneville Power Administration.

It appears that about 200 megawatts is available for exchange. This figure, incidentally, closely approximates the unused capacity projected for the completed lines. This capacity will be available to transmit displacement power. It will also provide purchasing flexibility and benefit WAPA customers by making surplus secondary power from the Columbia River power system available to them. Both hydro systems will become more efficient. River operations will be improved.

MEETING MONTANA CONCERNS

Meeting the concerns of the State of Montana has been very important to me personally. The Bonneville Power Administration is striving very hard to address the concerns of Montana, its people, its elected officials and its government with respect to the Colstrip project. At one point, it was you, Senator Baucus, who suggested that we might better achieve this end by establishing a field office in Missoula, Mont. You suggested that a Missoula office would be accessible to more persons than BPA's district office in Kalispell and that it would be a closer place for persons who would be affected by the Colstrip lines to make contact with Bonneville officials.

Pursuant to your suggestion, the Bonneville Power Administration established a field office at Missoula in May of 1981. The office has since become an important source of information for local individuals, groups, and communities. It has given the Bonneville Power Administration a point of contact that has improved our understanding of Montana's concerns. Often our staff in Missoula has forwarded information on local concerns to the senior staff at Bonneville's headquarters in Portland, enabling the Bonneville Power Administration to respond more quickly.

We have since moved the location of the district office from Kalispell to Missoula because it is more centrally located. Also, a recent analysis showed that travel costs of the entities who do business with us could be reduced if the Montana district office were in fact moved to Missoula.

Our Missoula staff periodically publishes a newsletter which is sent to some 2,500 residents, landowners, and groups throughout Montana. I understand once again, Senator, that this was an idea that came from a discussion our parties had with you some months ago. This newsletter has been well received because it is a source of factual information on Bonneville's policies, plans, programs, and progress. As a result, we believe Bonneville's relationships in the State have greatly improved.

NUMEROUS MEETINGS HELD

Numerous meetings have been held in Montana since the Colstrip transmission project was first initiated more than 9 years ago. We have compiled a chronological list of all the Montana public hearings, group discussions, and public meetings that Bonneville has sponsored or participated in during the past 4½ years. A total of 149 such meetings were held in 27 communities in Montana. I will enter a list of these meetings for the record. I believe it attests to the Bonneville Power Administration's commitment to reach out to the public, to listen and to respond.

The great preponderance of these meetings were held to discuss the planning of the Colstrip transmission project, its alternative routings and the environmental factors involved. Other subjects discussed included Bonneville's rates, billing credits, energy conservation programs, impact aid, and the power sales contracts that were signed as of midnight this last Saturday. In the main, however, we sponsored these meetings to gather information and comments on possible environmental impacts and to develop a record on which the land management agencies and the Bonneville Power Administration staff's decisionmakers, including myself, coud base decisions with respect to the possible route. These decisions, of course, are also being based on engineering and economic considerations. Our objective is to choose the most acceptable route for reliable, cost-effective transmission facilities.

In response to public concerns, the Bonneville Power Administration has made a significant number of substantial routing changes. These changes have added more than 7 miles of transmission line and $5 million in costs to the section of line between Townsend and Garrison. The changes were made to accommodate concerns raised by Montana landowners.

In addition to the record of formal and informal public meetings, our staff in western Montana has recorded more than 700 personal, mail or telephone contacts with individual landowners and other concerned parties over the past 2 years. Unrecorded contacts could boost that number to well over 1,000.

Since becoming the Administrator 1 year and 4 months ago, I have emphasized the need for Bonneville to continue its strong commitment to involve State governments within the region we serve, that's all four states, in the evaluation and siting of transmission facilities. We have worked hard in past months at developing a partnership with Montana's Board and Department of Natural Resources and Conservation, its Board and Department of Health and Environmental Sciences and its Department of Fish, Wildlife and Parks. This effort has had a significant impact on the agencies' staffs, funds, and involvement with the public. To assist the State in its evaluation efforts and to assure Bonneville's compliance with the substantive standards of the State's Major Facility Siting Act, the Bonneville Power Administration recently entered into an agreement with the State to provide $370,000 to facilitate the State's review.

IMPACT AID

Under current law, and this is the new Regional Power Act, Bonneville is not authorized to make payments in lieu of taxes to local entities. However, following passage of this act, it has the authority to make impact aid payments. We are in the process of implementing an impact aid program. Pursuant to this authority, the Bonneville Power Administration initially proposed to local governments that impact aid be a reimbursement for actual costs. After analyzing this proposal, the local entities objected to this approach and proposed a number of changes.

In addition, Governor Schwinden, Secretary of State Jim Waltermire and Attorney General Mike Greely were instrumental in improving the original concept. Each of these officials asked us to simplify our approach, which they said was too bureaucratic, and thus ease the administrative burden that would be placed on local governments. We did so. Governor Schwinden suggested that provision be made for payments to local governments which experience exceptional costs due to Bonneville Power Administration facilities. This too has been arranged. In these and other modifications, Bonneville has attempted to serve the best interests of the local governments. It is our action and not our words that I think really count.

The new approach improves the process of making payments to the local governments and bases these payments on a mathematical formula. The payments will be based on costs but will be estimated for administrative convenience. BPA anticipates that the payments will be made prospectively; in other words, in advance, with any adjustments taking place at the end of the payment year. Any local government that has direct costs greater than the formula payment need only to identify those to BPA in order to receive payment therefor. The underlying formula would be developed on information which will be submitted by the local governments to the Bonneville Power Administration.

We intend to announce a revised impact aid proposal within the next 2 weeks. It, like our previous proposal, will be subjected to public review and comment. The goal of this program is to properly compensate local governments for line construction impacts. However, BPA's fiscal responsibility to its ratepayers cannot be compromised; hence, any aid formulas must meet the test of prudent fiscal management.

MEMORANDUM OF UNDERSTANDING

The Bonneville Power Administration has collaborated with the State of Montana in drafting a memorandum of understanding which is going into effect today, the 31st of August, 1982. We have been working on this for several months. My purpose in requesting that I be excused at the conclusion of my statement is to meet with Gov. Ted Schwinden that he and I might sign this memorandum. The memorandum provides a basis for more explicit agreements. One such agreement, an agreement to cooperate fully by jointly studying and evaluating alternative locations for transmission lines, has already been developed. It also will become effective today.

The memorandum is an example of how BPA in the past year or so has intensified its efforts to work harmoniously with the State of Montana. We seek a relationship in which there is a true spirit of cooperation. We believe our program is matched by similar intentions on the part of the State, and we believe this mutual effort is succeeding. We have developed closer working relationships with the State and its agencies. To this end, the Bonneville Power Administration recently established an office in Helena. Mr. Randy Moy, a former administrator in the Montana Department of Natural Resources and

Conservation, is in charge of the office. He is coordinating our activities with State officials and agencies. Mr. Moy's presence in Montana's capital city should be helpful to all concerned.

Although the office in Helena is new, its location here is consistent with Bonneville's tradition in that the agency has continually sought the advice and counsel of other government entities. You may recall that the steering committee for the Garrison-Spokane environmental impact statement involved a number of agencies. They included the U.S. Forest Service, Bureau of Land Management, the State of Montana, the State of Idaho, Bureau of Indian Affairs, Confederated Salish and Kootenai Tribes of the Flathead Reservation, the U.S. Fish and Wildlife Service, Army Corps of Engineers, National Park Service, Army Corps of Engineers, National Park Service, the Washington Water Power Co., and of course the Bonneville Power Administration.

COOPERATIVE ACTIVITIES

Bonneville is presently providing $250,000 to the department of natural resources and conservation to promote energy conservation. This arises, Senator, by the Regional Power Act. The department will work directly with local governments, small consumers and electric cooperatives. The Bonneville Power Administration has also provided $150,000 to the Department to determine the cost effectiveness of converting biomass, especially wood residues in western Montana, to an energy source. These are new cogeneration or environmentally sound alternative resources for which we were given authority under the act to pursue, another action in the State of Montana.

Bonneville is participating with the Montana Department of Fish, Wildlife, and Parks and the U.S. Forest Service in an elk study. BPA has provided $100,000 to monitor the effects of Colstrip transmission on the elk herd near Boulder to mitigate the fish and wildlife. Bonneville is also furnishing $340,000 this fiscal year for two ongoing fisheries studies and plans to add to this sum in the future. One of these studies addresses the cumulative fish and wildlife impact of small hydro sites on the Swan River. The other addresses effects of the operations of Kerr and Hungry Horse Dams on the reproductive success of Kokanee in the Flathead River system.

The Colstrip transmission construction program has generated a significant amount of litigation involving the concept of Federal supremacy. The cases that have been decided have a major impact on Federal-State relationships. As you know, there is a long judicial history involving many instances in which the issue of Federal supremacy has been litigated and judicially defined. Included among these cases is one that went to the Court of Appeals for the Ninth Circuit from the State of Washington, three decisions in the U.S. District Court for the District of Montana decided by District Court Judge James F. Battin, and a recent decision from the Court of Appeals for the Eighth Circuit. The concepts contained in these cases, I'm advised, all follow a similar line of reasoning. Bonneville's assistant general counsel, Mr. Halvorson, who I introduced earlier, will make a brief presentation regarding these cases and their application to Bonneville's activities in the State of Montana at the conclusion of my remarks. He will also be available for questions. Summaries of these cases will be presented for inclusion in the record.

Almost 2 years have passed now since the Congress enacted the Pacific Northwest Electric Power Planning and Conservation Act. This legislation, which is known as the Regional Act, has drawn Montana much closer to her three sister States in the Pacific Northwest region. Benefits, including greater amounts of low-cost power from the Federal Columbia River Power System are being extended to Montana.

The Regional Act authorizes an exchange of power with the region's investor-owned utilities to provide rate relief to residential and farm customers within the State. Montana Power Co. and Pacific Power and Light Co. are among the utilities who have been offered contracts for such exchanges with Bonneville. Both of these utilities serve homes and farms in Montana. This arrangement in effect melds higher and lower cost supplies of energy. Pacific Power has signed an exchange agreement with Bonneville. Between October 1981 and July 1982. Pacific Power's Montana customers received more than $1.5 million in rate relief as a consequence of this provision of the Regional Act, which has implemented, incidentally, precisely on time as prescribed by the law. Montana Power Co. has not yet signed an exchange agreement. Both companies, however, have signed a new 20-year power sales contract with Bonneville effective last Saturday night at midnight.

An important element of the Regional Act is the consent of Congress for the Pacific Northwest States to create the Pacific Northwest Electric Power and Conservation Planning Council, of which Keith Colbo is a member. The council consists of eight members. Each Governor of the four Northwest States appoints two members. This body under terms of the act is responsible for drawing up a long-range plan by April 1983 for the future development of electric energy in the Northwest. It is also responsible for developing a set of recommendations to enhance fish and wildlife resources of the Columbia River and its tributaries.

It has been previously suggested that the council, because of the breadth of its planning responsibilities, has some implied or residual supervisory authority over the Bonneville Power Administration. There is, however, no basis for such authority in the act. If such authority had been given to the council, the Congress would first have had to make the council a Federal entity and its members would then have had to be appointed in conformity with the Appointments Clause of the U.S. Constitution. This serious constitutional problem was considered by the Congress, I am told at length, in its decision to establish the council in its present form.

As intended by the framers of the Regional Act, the council is inherently a planning body with certain specified review obligations. BPA is the implementing or the action agency, and as such is legally responsible only to Congress and the executive branch. Programs of the council and BPA are to complement one another: neither is subordinate to the other. From Bonneville's perspective, this concept appears to be working well.

STATUS OF CONSTRUCTION AND SITING

Contractors' crews began constructing the Garrison substation and two segments of the double circuit 500 kV transmission line between Townsend and Garrison in mid-July. This work is being accomplished under three separate contracts. The actual construction of these facilities began after easements were received from the Montana State Land Board and the Board of Natural Resources and Conservation had determined that the Bonneville transmission lines are in compliance with the substantive provisions of the Montana Major Facility Siting Act. Their finding, however, did not include the proposed Missouri River crossing. This crossing will not be built until the issue of its location is resolved.

A fourth contract for the third and final segment of the 97 miles of transmission lines from Townsend to Garrison was awarded yesterday. BPA expects the transmission circuits between Townsend and Garrison to be completed before October 1983 when Colstrip generating unit No. 3 is scheduled to begin producing electricity. As you know, these circuits are to be extended from Garrison west to the existing 500,000 volt line serving northwest Montana. One circuit will continue to the vicinity of Spokane. At the present time, we are evaluating alternatives routes for the section from Garrison west, a section which is approximately 260 miles long and which is broadly referred to as Garrison-Spokane. Several feasible, alternative routes, including alternative center lines suggested by members of the public, are now under consideration. The final selection of a route from Garrison to Spokane will be made early next year after the final environmental impact statement is published.

This includes my prepared remarks, Senator. I or members of my staff would be pleased to respond to any questions you may have. Following that, Mr. Halvorson is present and able to make his remarks.

Senator BAUCUS. Thank you very much, Mr. Johnson. We have quite a few witnesses, as you know. I have quite a few questions, as you'd probably expect, and in that regard, if you could keep your answers relatively short, I would appreciate it. In addition to that, there is always an opportunity for you to expand upon your answers in written responses for the record. So feel free to do so. I have the memorandum prepared by Mr. Halvorson in hand here and I'll make that a part of the record. I'll have some questions that I will submit to you for the record, but I don't think we have time for him to present his testimony on that memorandum.

Senator BAUCUS. Let me start out by asking you whether you reviewed the provisions of the Montana Siting Act?

Mr. JOHNSON. I have not personally read that act. I am aware generally with its existence, yes.

Senator BAUCUS. Why didn't you simply agree to comply with the Montana siting law?

Mr. JOHNSON. We feel we have a responsibility to meet the substantive standards and we have made every attempt to do this and I think we have taken many actions involved in many processes, Senator, to attempt to accomplish this. With respect to the process, we believe that's another matter.

Senator **Baucus.** Do you think that the Montana law is a reasonable law; is it a reasonable enactment?

Mr. **Johnson.** We do not think it's unreasonable.

Senator **Baucus.** Do you think it's reasonable?

Mr. **Johnson.** Yes.

Senator **Baucus.** You don't find it burdensome or unfair?

Mr. **Johnson.** I'm not specific on all the details of that act, but in general, no, we do not find it burdensome.

Senator **Baucus.** So it's not nonsensical, it's not written by a bunch of fools; it's a reasonable act?

Mr. **Johnson.** In general, I would certainly agree with that.

Senator **Baucus.** Is there any legal requirement currently applicable to BPA that obligates BPA to refuse compliance with the Montana siting law?

Mr. **Halvorson.** Senator Baucus, if I may. Omar Halvorson, assistant general counsel. It's been our position in many of the dealings with the Department of Natural Resources with respect to the Major Facility Siting Act that the two matters that the Siting Act is set up to determine, and that is the need for a facility and the optimum location of siting, in both matters that the Bonneville Power Administration as a Federal agency would not submit to State jurisdiction. The issue has been that of the Federal supremacy argument, that Congress had authorized the construction of the transmission line and in doing so had determined that there was a need for it. Additional need had to be determined then by the Board of Natural Resources on the Colstrip project itself, and for the location in siting, BPA had taken the position that it remained ultimately the responsibility of the Federal agencies; that is, BPA and the land management agencies, BLM and the Forest Service. Our efforts to share information and to obtain input from the State of Montana and from the citizens of Montana was conducted through the NEPA process, and there was, as you know, a considerable history of environmental analyses of the Colstrip project.

Senator **Baucus.** Is there any specific Federal statutory prohibition against BPA's compliance with the Montana siting law?

Mr. **Halvorson.** Only the constitutional provision and the concept of Federal supremacy.

Senator **Baucus.** So what you're saying is it's your position that BPA has a legal obligation not to comply based upon your reading of the Supremacy Clause in the Constitution?

Mr. **Halvorson.** It would be our position that a long line of cases beginning with those identified in the memorandum all establish a concept for Federal supremacy and have been authorized by the Congress, and when there is a congressional program, that that program can be, must be carried out without interference by State regulation or control.

Senator **Baucus.** I can see the argument that the Supremacy Clause might support BPA's decision not to comply. I don't see that it requires BPA not to comply.

Mr. **Halvorson.** I think the difficulty with any other position would leave the State in a position of being able to veto a Federal project should their decision be any different than that of the Federal agency.

Senator BAUCUS. What prohibits the Federal agency from agreeing to comply? You're correct in your result, but you're not answering the question as to what prohibits the Federal entity, in this case, BPA, from complying, from deciding in its own discretion to comply?

Mr. HALVORSON. I think the long history of interpretation of the Supremacy Clause places the decision to subordinate Federal activities to State control squarely in the Congress and not in the executive branch, and it is our following of those lines of decisions that led us to that position.

Senator BAUCUS. Let me ask the same question somewhat differently. Is there anything wrong with the State of Montana siting transmission lines within its borders so long as they integrate with and meet the needs of the Pacific Northwest?

Mr. HALVORSON. Are you addressing that to me, sir?

Senator BAUCUS. I'm addressing it to Mr. Johnson or to you or whoever wishes to answer the question.

Mr. HALVORSON. There's certainly nothing wrong with their function in that regard.

Senator BAUCUS. So long as Montana through the Siting Act sites the lines and provides the power to the Bonneville system, how are residents in the Pacific Northwest, Bonneville customers, damaged?

Mr. HALVORSON. I'm not sure that that's the issue that underlies the Federal supremacy concept. The very point I think you're making, Senator, is the one that has led the Bonneville Power Administration and the DNRC to its present cooperative agreement in which there is going to be a joint action with respect to the evaluation——

Senator BAUCUS. Well, let me talk to you about that point. You're trying to have it both ways and it just won't wash. On one hand you cooperate and on the other hand you cite the Federal Supremacy Clause, which makes BPA supreme. It's one or the other. Which is it?

Mr. HALVORSON. In terms of the——

Senator BAUCUS. This morning so far you're saying that BPA is supreme, it's required not to submit to Montana law. In Mr. Johnson's testimony earlier he said it's a mutual cooperative agreement; both sides share, and the implication is that you're coequals. You can't be coequals and supreme at the same time, so which are you?

Mr. HALVORSON. Well, let me go back, Senator. The Federal Government would have to make a decision regarding the siting and location. It's anticipated as a result of the efforts of this cooperative agreement that we'll be able to mutually resolve all of the questions that the State has and the Bonneville Power Administration has and the Federal land management agencies have, both BLM and the Forest Service.

Senator BAUCUS. I don't quite understand those words. Are you saying that BPA is supreme, or are you saying it's a mutual level of authority, the same level of authority as the State of Montana on these issues?

Mr. HALVORSON. The ultimate decision would have to be that of the Federal agencies, Senator.

Senator BAUCUS. So you're saying it's not a mutual agreement; that that memorandum of understanding doesn't amount to much because the BPA will decide what it wants to do?

Mr. Halvorson. No, I'm not saying that at all.

Senator Baucus. Well, if you're saying it's supreme, you're saying that it decides. It seems to me that you're saying that it has the final word.

Mr. Johnson. Senator, let me add something as the person responsible for Bonneville at this time. I don't think in any way it is our intention to come in this State now or ever and suggest that Bonneville is supreme in any sense. There is a concept of law which is generally described as the Federal supremacy law dealing with sensitive issues that have been the subject, I'm sure, of court decisions for the last 200 years. But we are here to cooperate with the State of Montana in a way within that law and within the law of the State of Montana in order to serve Montana's interests, as well as the interests of the Federal agencies and the rest of the ratepayers in the Pacific Northwest. That is what's the subject of the memorandum of understanding.

Senator Baucus. Would the BPA be inclined to support legislation to clarify this issue, directing BPA to comply with the Montana siting law; would BPA support that legislation?

Mr. Johnson. I think that's a matter, Senator, and as counsel has said, is a very sensitive issue, for the Congress, and we would certainly respect any law that was passed by the Congress dealing with that subject, as we do the laws we're presently operating under.

Senator Baucus. What would your personal view be; you, Peter Johnson?

Mr. Johnson. Well, my personal view, I don't think it's appropriate for the administrator, because it's a matter that would affect not only the Department of Energy, but OMB and all the other departments in the executive branch; I do not think I have the authority to——

Senator Baucus. But would BPA oppose such legislative efforts?

Mr. Johnson. I think, Senator, our position would be to remain neutral on that subject.

Senator Baucus. How much has the State lawsuit cost BPA so far?

Mr. Johnson. I do not have those exact numbers.

Senator Baucus. Do you have an approximate figure?

Mr. Johnson. Well, we've had our own general counsel's office working on it, and of course the Department of Justice as well. I do not have an accounting of that.

Senator Baucus. Just a rough guess. You can supply a more precise figure for the record, but right now I'm just curious what a rough estimate would be.

Mr. Halvorson. Senator, I suppose that our office has had about a man-year of effort in that, plus whatever traveltime.

Senator Baucus. Is that Montana billing fees or Washington, D.C., billing fees?

Mr. Halvorson. Well, neither of those. That would run about $40,000 to $45,000.

Senator Baucus. That's BPA, plus the Department of Justice?

Mr. Halvorson. And the Department of Justice has had some input in that. The assistant U.S. attorneys have been working with us on that. I wouldn't be able to identify very well what their participation is, but it's less than that.

Senator Baucus. How much is an appeal likely to cost? I mean, you have budgets. I'm just curious as to what you expect.

Mr. HALVORSON. I don't know if we have it broken out in those terms, Senator. It would be a matter of rebriefing matters that have already been briefed and preparing them in a form suitable for submission to the court of appeals in the ninth circuit. It would be a much reduced commitment on that in terms of the briefing time or other time involved.

Senator BAUCUS. Could you supply an estimate for the record then, please?

Mr. HALVORSON. I'd be very pleased to do that, Senator.

[See under question 5 in the question-and-answer section of the appendix.]

Senator BAUCUS. Who pays these costs?

Mr. JOHNSON. With respect to general counsel of the Bonneville Power Administration, those would be paid by the ratepayers in the four State region, because that would be an amount that would be in Bonneville's budget which would be entered into the repayment study and would have to be recovered through rates.

Senator BAUCUS. In addition to that, Montana taxpayers have to pay for the State's litigation costs. They fund both sides of the lawsuit. Isn't that correct?

Mr. JOHNSON. That's correct.

Senator BAUCUS. Would you supply a copy of your complaint answers and major briefs in the State lawsuit for the hearing record, please?

Mr. JOHNSON. Yes; we will.

Senator BAUCUS. I'd also appreciate a copy of the transcript of the latest Federal district court hearing where BPA argued that the Montana decision on the transmission line included no substantive standards.

[See app. B, on file with the subcommittee.]

Mr. JOHNSON. Yes; we would supply that too.

Senator BAUCUS. In the State lawsuit BPA asked Judge Battin to force Montana to hurry its decision on the transmission lines in compliance with State law; is that correct?

Mr. JOHNSON. Yes.

Senator BAUCUS. Why did BPA make that request?

Mr. JOHNSON. We have a schedule that we're attempting to meet that is driven by the on-line date of the generating resources units 3 and 4 at Colstrip and those require expeditious action. We have responded to requests of the board; we've furnished information at meetings, and a decision was not forthcoming, so we urged that that occur in the interest of maintaining the schedule of the transmission lines.

Senator BAUCUS. At that time had BPA submitted all documents requested by the State?

Mr. JOHNSON. It's my understanding we had.

Mr. HALVORSON. Yes, Senator, as far as we know.

Senator BAUCUS. I ask the question because of an incongruity here. On the one hand you want to hurry up the State of Montana; on the other hand, I understand in Washington State it's BPA that doesn't seem to be in a big rush in the litigation out there. In the *Columbia Basin* case the ninth circuit remanded the case to Federal District Court in Spokane, and there Judge McNichols issued a schedule order for the exchange of necessary documents. Washington State after a 2-week extension of time provided a list of materials needed from

BPA. But BPA did not provide any information requested by the State. I understand the agency consistently sought extensions of time for several months until March 9, and after March 9 you didn't even seek extensions. It's now late August and you still have not provided the requested information. The question is why has BPA delayed so much and forced Washington State to file a motion for terms and order of consistency?

Mr. JOHNSON. Senator, it's my understanding that that may not be accurate. We have furnished all the information required in that instance to the U.S. attorney and on two occasions we have written letters urging that that information be forwarded on to the parties that you suggest should receive it, so it is not Bonneville that is causing the delay in that transmittal as you said, it was others.

Mr. HALVORSON. Senator Baucus, that matter did arise at the hearing in Spokane yesterday and I'm advised that the assistant U.S. attorney handling the case did advise the court and members present that instead the office of the U.S. attorney had control of the documents and had not delivered them.

Senator BAUCUS. I have a letter here from the Attorney General—assistant attorney general from the State of Washington stating Bonneville is causing all this delay and I'll make that part of the record. It may be the U.S. attorney's office; I just don't know. I hope that if it is the U.S. attorney's office, it's done in good faith. Is there a memorandum of understanding with Washington State similar to the one that goes into effect today with our State?

Mr. JOHNSON. Senator, that's under discussion. There is one that is within the same framework that exists with Governor Atiyeh of the State of Oregon. There are discussions which have been initiated with the State of Idaho, Governor Evans, and with the office of Governor Spellman and I understand there's been two meetings in the last 2 or 3 months.

Senator BAUCUS. So you're negotiating with the State of Washington?

Mr. JOHNSON. It's our intention of putting into place a similar document with all State governments.

Senator BAUCUS. Let's turn to the Montana memorandum of understanding. As I read it, it seems like it doesn't help with the Townsend-Garrison controversy; is that correct?

Mr. JOHNSON. It doesn't deal specifically with the Townsend-Garrison; no.

Senator BAUCUS. And that's because it deals with the future siting, doesn't it, not the present?

Mr. JOHNSON. Yes; it's a more generic agreement that provides for a negotiation and the execution of the—those agreements, and I think I've mentioned in my testimony that coincidental with the signing of this agreement with the Governor today, so too will another go into effect that deals with siting, actually, I think, with the line from Townsend to the State line of Montana and that will go into effect today too.

Senator BAUCUS. Does it deal with the controversy on the Garrison west line?

Mr. JOHNSON. I think it will deal with that, yes.

Mr. HALVORSON. Peter, if I might qualify that. The agreement that is for signature today by the director of the department of natural resources and conservation is generic and speaks prospectively to future transmission line locations. We're anticipating that we will be able to use some of the processes, the methods set out in that in the Garrison-Spokane analysis. We do have a contract at the present time that Mr. Johnson referred to earlier in the amount of $370,000 for the review and evaluation of line location matters on the Garrison-Spokane with the department of natural resources and conservation.

Senator BAUCUS. As I read the memo, it seems not to concede one iota of State control of the transmission lines, the site of the lines within the State of Montana; is that a correct reading?

Mr. HALVORSON. That's correct, Senator. There's some consideration given to that, and as you are aware, we've had decisions from Judge Battin dealing with this matter, and especially the most recent decision on August 13. But the State has advised us that they are considering a request for reconsideration to open an appeal in that instance, and we move in this instance in an effort to accommodate each other's needs and move as far as we could toward a cooperative, joint action and saving, if you like, the issue of decisionmaking.

Senator BAUCUS. Under this memo, if BPA and Montana failed to agree on the route of the line for a BPA line through Montana, as I understand it, the State could basically take its maps and file them; isn't that correct?

Mr. HALVORSON. Senator, we'd like to think that—let the process work itself out. We're optimistic that we will be able to achieve some agreement.

Senator BAUCUS. But where there's no agreement, then what?

Mr. HALVORSON. I think at that point both the State and the BPA would have to reexamine the premise we're operating under here, and perhaps the State would assert that it had the final location——

Senator BAUCUS. I'm sorry what was that last phrase?

Mr. HALVORSON. I think the State might assert that it had the final location decision and perhaps BPA would take the same position together with the other Federal land management agencies which have a responsibility in granting rights-of-way permits for whatever transmission line location is decided.

Senator BAUCUS. But as you said earlier this morning, under your reading of the supremacy clause, BPA not only has the right, but has the duty to not concede to State wishes; is that correct? Is that your understanding; is that your reading and is that the position of BPA?

Mr. HALVORSON. That's my reading of the constitutional obligation, Senator.

Senator BAUCUS. And that is the position of BPA?

Mr. JOHNSON. It's our position in upholding the law of the land, yes, but it's not our purpose to—it's our object, Senator, in this memorandum of understanding, given the law that exists, to get the job done in a reasonable and responsible manner. I think an example that is before us right now with the crossing of the Missouri River and with the Townsend to Garrison section. That was an area of concern with the Department of Natural Resources and Conservation. Bonneville withheld that from the contract and construction has not moved forward up to this date on that until such time as that could be fully assessed by the Department of Natural Resources and Conservation. I am told now that it has been done, there has been an agreement, they are acceptable, in fact, they're recommending we proceed, perhaps, in a certain way, so it's how we act that counts and I appreciate where you're coming from with respect to a strict interpretation of the law, but it's not our intention as Bonneville to come in and lord some authority that may exist in Federal law over State authority, so it's our object and purpose to cooperate and get the job done.

Senator **Baucus**. Yes, I understand what you're saying and I'm not here to say that it is or is not the intention of Bonneville to come over in a very authoritative way and I don't want to delve into the minds of BPA. What I'm trying to establish is what the position of BPA is regardless of its intention with respect to Montana sensitivities, and as I do understand it, as I hear you, Mr. Halvorson, the position of BPA is that BPA has not only the right but a duty when it disagrees with the State of Montana not to concede to the State of Montana but to follow the position of BPA only.

Mr. **Halvorson**. I think the duty would be to carry out the Federal program——

Senator **Baucus**. As BPA interprets not the statutes, but the Federal Supremacy Clause?

Mr. **Halvorson**. That would be correct, Senator.

Senator **Baucus**. Why did BPA argue to Judge Battin that the Montana siting decision was based on no substantive standards, even though the Montana decision thoroughly reflected the Montana Board of Natural Resources view that BPA's was not the route with the minimum environmental impact required by Montana law?

Mr. **Halvorson**. We were making a distinction between the standards and process, Senator, and it was our position that a process which applied a general concept, such as locating a transmission line with minimum environmental adverse impact, was not a standard but instead had to be the actions of a regulatory body in reviewing this information and then making a determination about location of a particular facility. We took the position that whatever substantive standards existed we felt we were in compliance with them and ultimately Judge Battin concurred in that position.

Senator **Baucus**. Well, isn't minimum environmental impact substantive? It sounds pretty substantive to me.

Mr. **Halvorson**. It's certainly a substantive concept, but it can only be applied through a process, and it is that process to which we objected and it's a process, incidentally, that the Columbia Basin decision in the court of appeals also rejected as a process by the Federal agencies.

Senator **Baucus**. Aren't you in effect saying that substantive standards have to be quantitative?

Mr. **Halvorson**. That's the easy example for them, you know, parts per million, something of this kind.

Senator **Baucus**. Well, if that's the case, I have some trouble because. BPA doesn't make siting decisions on such precise quantitative grounds. Neither does the State of Montana. For example, we don't approve a line in Montana that requires 150 miles of road construction on elk habitat, but disapprove it if it requires 160 miles. That's a quantitative difference, 150 to 160. These things are in fact somewhat discretionary; that is, applying substantive standards is based on discretion; its partly an art. The Supreme Court, when reviewing the Constitution, let's say free speech. I don't know how you quantify free speech, but it's a substantive standard, and the Court makes a decision whether a statute infringes upon that constitutional right. It seems to me that minimum environmental impact is a substantive standard. It doesn't make that much difference if the road requires or a transmission line requires 150 versus 160 miles of road. I still don't understand why minimum environmental impact is not a substantive standard.

Mr. **Halvorson**. The distinction that we feel was made in the Columbia Basin decision and ultimately by Judge Battin is that, that kind of standard, if we can identify it so——

Senator **Baucus**. What type of substantive standards would you expect Montana to develop and apply to these transmission lines? Give us some examples.

Mr. **Halvorson**. Well, my ready objective standard was so many parts per million for air or water quality, which is an objective standard. We do not have standards to suggest to the State of Montana. What we're doing, Senator, with our NEPA process is in effect doing the same—taking the same application of a standard that is done by the State of Montana through the Major Facility Siting Act. The difference lies in the fact that the Federal bureau responsible for the program is responsible also for conducting the environmental analysis.

Senator **Baucus**. Are you saying then that you count the number of elk affected in developing standards whether or not, say, a transmission line adversely affects elk habitat?

Mr. **Halvorson**. No, I'm not suggesting that.

Senator **Baucus**. Then I don't understand. If you're not saying that, why are you saying that the State should look at parts per million in deciding whether to site and plan?

Mr. **Halvorson**. I'm not suggesting they should. I just identified that as an objective standard of the sort that allows an agency to measure activities. The National Electric Safety Code is another such standard. It's applicable in the State of Montana and BPA meets all those standards of the National Electric Safety Code, and they have to do with clearances and other matters of safety.

Senator **Baucus**. I'd appreciate it if you could supply for the record a list of types of substantive standards that you'd expect Montana to develop and apply. Is it true that Judge Battin did not have a chance to hear a formal presentation by the State of Montana in response to your contention on the characteristics of substantive standards?

Mr. **Halvorson**. I don't think so, Senator. The State of Montana was represented by one assistant attorney general and the department of natural resources had a special assistant attorney general present at the hearing in Billings.

Senator **Baucus**. Will you support the State if a request for rehearing is made to give the judge a greater opportunity to hear the State's position on this point?

Mr. **Halvorson**. I don't think the Bonneville Power Administration would support a motion for reconsideration of that decision.

Senator **Baucus**. Would not?

Mr. **Halvorson**. Would not.

Senator **Baucus**. Because it's your view it's been fully heard already?

Mr. **Halvorson**. I have not reviewed that with Mr. Johnson. The question has not arisen. All we have heard so far is the motion for reconsideration is being considered, but the decision generally is in accord with the position that BPA has taken for sometime and that kind of provision would reverse positions to now ask for reconsideration.

Senator **Baucus**. I believe you, Mr. Johnson, testified at Senator Melcher's hearing that you were totally neutral on payment in lieu of taxes. Is that correct?

Mr. **Johnson**. That's correct, Senator.

Senator **Baucus**. If that's so, does that mean you have not even the slightest inclination either to support or oppose payment in lieu of taxes?

Mr. **Johnson**. Senator's that's a matter, once again, that I think is a prerogative of the Congress to set such policy.

Senator **Baucus**. I agree with that so far; I'm wondering about you.

Mr. **Johnson**. There are two sides to that issue.

Senator **Baucus**. There usually are.

Mr. **Johnson**. It's been discussed many times, including the passage of the Regional Power Act, and I'm sure it was debated at length on that occasion, and as a consequence we have impact aid and I'm trying very hard now to get that into a meaningful form so that it can be implemented and deliver the benefits to landowners and local governments as contemplated. Bonneville stands prepared, because it has a fine data base, to parties who may wish to evaluate impact aid payments by Bonneville and we would certainly supply information for those persons to——

Senator **Baucus**. Essentially are you telling me BPA is neutral or is not?

Mr. **Johnson**. Yes, it is neutral. If there were impact aid payments, there would be increases in rates and I would think, Senator, you're aware of the pressure that's been put upon the administrator to insure that it doesn't increase costs.

Senator **Baucus**. I understand that. How much do you estimate BPA's current impact aid program will cost per ratepayer?

Mr. **Johnson**.We have not tried to make that. It's going to be small.

Senator **Baucus**. Pennies?

Mr. **Johnson**. I can't tell you what it would be until I make an assessment of that.

Senator **Baucus**. You must have--how much overall would it cost, the total cost?

Mr. **Johnson**. Several millions of dollars on this project alone, but we haven't made an actual estimate of that yet.

Senator **Baucus**. You could not make an estimate of cost of the impact aid?

Mr. **Johnson**. No; because the process and its definition is still unfolding. I've heard several millions of dollars. It's not $100 million.

Senator **Baucus**. Is it $1 million?

Mr. **Johnson**. It's greater than $1 million; yes.

Senator **Baucus**. I'm a little surprised you don't have a more precise feeling for that. How about payment in lieu of taxes; how much will that cost in Montana?

Mr. **Johnson**. I do not know that figure either, Senator.

Senator **Baucus**. Have you heard a figure?

Mr. **Johnson**. A figure has never come to my knowledge of that subject, no.

Senator Baucus. Could you provide that figure for the record, please——

Mr. Johnson. I'd be happy to.

Senator Baucus. As Bonneville calculates, it, as well as impact aid?

Mr. Johnson. Yes.

Senator Baucus. The impact aid and the payment in lieu of taxes both, would you provide that for the record?

Mr. Johnson. I'd be happy to.

Senator Baucus. Are you saying you have not studied the costs of payment in lieu of taxes program at all?

Mr. Johnson. Only very generally, and we're still in the process of gathering that information from the counties. See, they are to submit to Bonneville their estimate of what these costs of impact would be so that we can then pay the impact aid prospectively. We have not asked them for that information yet because a mathematical formula is still in the process of unfolding and heavy influence is a consequence of recent important input, as I mentioned, of the Governor and the secretary of state and also the attorney general.

Senator Baucus. Are you saying you can't get the figure now because the formula is being modified?

Mr. Johnson. The numbers have not been submitted by the county governments.

Senator Baucus. Have you requested those numbers?

Mr. Johnson. No; because we're still in the process of developing a formula. It's been modified. Originally we were going to ask them to substantiate all costs that arose as a consequence of our constructing a line in their county.

Senator Baucus. When will you have those figures?

Mr. Johnson. As soon as this process is completed and we have in fact finalized——

Mr. Baucus. When do you expect that to be completed?

Mr. Johnson. It would be right away. In 2 weeks we'll be publishing this new rule and then there will be what, a 30-day hearing and public review process and then after that we should have the information.

Senator Baucus. I'd appreciate it if you could supply that information, that is, the cost estimate, as best you possibly can for the record, for both impact aid and payment in lieu.

Mr. Johnson. Yes.

Senator Baucus. I have, Mr. Johnson, a few more questions here, so again, if you could keep the answers short. I'll keep the questions short and we'll get through so you can make your meeting with the Governor. I appreciate the time you're taking here. What studies do you have underway concerning the health and safety affects of high voltage transmission lines?

Mr. Johnson. We have an updated analysis that is in draft form at the present time that is a summary, a bibliography of all data that has been prepared dealing with the health and safety of transmission lines, and we'd be happy to supply a copy of that to you.

Senator Baucus. Yes, if you could supply that bibliography for the record, I'd appreciate that very much.

[See app. F, on file with the subcommittee.]

Mr. Johnson. Do you have a copy of that with you, Jerry?

[Speaks to Jerry Frick.] Just a second here. There's one section in there I'd like to read to you.

Senator Baucus. Sure. I don't want to keep the Governor waiting here.

Mr. Johnson. This is the third paragraph of the foreword:

> **The overall result of this research and the operating experience continues to indicate that there is little reason for concern about potential long term health effects from transmission lines.**

Senator Baucus. Thank you. Is BPA currently liable for health and safety effects of its high voltage lines? Any liability at all?

Mr. Halvorson. Senator, our liability in that is determined by the Federal Tort Claims Act. It would depend upon some negligent act on the part of the Federal Government to make us liable for injury. I think within that context, liability exists or not depending upon the circumstances relating to that injury.

Senator Baucus. So under what circumstances would BPA be liable?

Mr. Halvorson. The Federal Tort Claims Act is based upon negligence in some fashion.

Senator Baucus. So you're saying, and I'm just asking the question, that BPA is liable only insofar as it's liable under the Federal Tort Claims Act; is that correct?

Mr. Halvorson. That would be correct.

Senator Baucus. So again, the circumstances under which BPA would be liable would be where BPA is negligent?

Mr. Halvorson. Yes, that's correct, Senator.

Senator Baucus. Are there any limits on liability?

Mr. Halvorson. None on that.

Senator Baucus. Unlimited liability if BPA is found to be negligent?

Mr. Halvorson. That's correct; I'm not aware of any dollar limits under the Federal Torts Claim Act.

Senator Baucus. Could you provide for the record in more detail a response to that question I just asked, please; that is, the nature of BPA's liability, the degree to which there are any limits on BPA's liability, and if you could be as specific as possible, it would be helpful. I ask that because it's a question a lot of Montanans are asking and I think it's a point we have to clear up and then we decide what, if anything, we want to do about it. Did the U.S. Congress specifically authorize BPA to construct a twin 500 kilovolt line from Townsend to Spokane?

Mr. Johnson. We believe, as in my formal testimony, that that Appropriation Act of 1978 was authority to construct this line, yes.

Senator Baucus. Why did BPA decide to construct the transmission line?

Mr. Johnson. We were requested to, first, by the Montana Power Co. and finally——

Senator Baucus. That was in 1977?

Mr. Johnson. That was in 1977, I believe.

Senator Baucus. And also? I interrupted you; I'm sorry.

Mr. Johnson. And by this action of Congress empowered and authorized and instructed to proceed with construction of that line.

Senator BAUCUS. Would you supply for the record a timetable showing when and with whom BPA met to discuss construction of the Colstrip integration line?

Mr. JOHNSON. We would be happy to.

Senator BAUCUS. And also if you could supply memoranda reflecting those discussions and BPA's reaction to the Montana Power Co. proposal.

Mr. JOHNSON. Yes, we will.

Senator BAUCUS. I've seen newspaper accounts indicating that a reporter for the Lee Bureau had difficulty with your freedem of information officer in Portland. Are you aware of that?

Mr. JOHNSON. Absolutely not.

Senator BAUCUS. Do you have an index to all BPA files?

Mr. JOHNSON. I'm not aware of any index. I'm sure there's a filing system that is kept by all departments.

Senator BAUCUS. So you do have an index; is that correct? Do you or do you not?

Mr. JOHNSON. Senator, we don't have a universal index at BPA. We do have, of course, filing systems, but they're peculiar to divisions or branches; that sort of thing.

Senator BAUCUS. Doesn't the Freedom of Information Act require an index to all the files, a universal index?

Mr. HALVORSON. I'm not aware that one has to have a universal index for all files.

Senator BAUCUS. But an index for all files?

Mr. HALVORSON. I think that's available, yes.

Senator BAUCUS. Whether you call it an index or not, at least an index for all files?

Mr. HALVORSON. That's correct. It may be in several files.

Senator BAUCUS. Excuse me?

Mr. HALVORSON. It may be in several parts, Senator, that's all I'm saying, depending upon——

Senator BAUCUS. I guess there's a question whether an index is in one part or several parts, but was a reporter denied access to the file index at any point?

Mr. JOHNSON. Not that I'm aware of.

Senator BAUCUS. Mr. Halvorson, are you aware of that?

Mr. HALVORSON. I can't answer that question, Senator. I just don't have any information on that.

Senator BAUCUS. Well, it's my understanding that he was. Would you provide for the record a formal statement from your Freedom of Information Officer describing this incident?

Mr. JOHNSON. We'll be happy to.

Senator BAUCUS. My understanding is that the reporter was Jim Robbins.

Mr. JOHNSON. Thank you.

Senator BAUCUS. Did BPA refuse to allow Northern Plains Resource Council and Missoula County to use its photocopier?

Mr. JOHNSON. Senator, I'm unaware of that. Jerry? Omar?

Mr. HALVORSON. Not that I'm aware of, Senator.

Senator BAUCUS. Would you check on that please for the record. Have you issued any memoranda to employees outlining BPA's procedures under the Freedom of Information Act?

Mr. JOHNSON. I'm sure that there's a policy within the agency instructing parties with respect to that.

Senator BAUCUS. Would you supply a copy of that policy for the record, please?

[See app. O (supplementary documentation), in the question and answer section in the appendix.]

Mr. JOHNSON. Be happy to.

Senator BAUCUS. Thank you. Congressman Pat Williams recently lodged a fairly routine request that you extend the comment period on the Garrison west draft environmental impact statement. You turned him down. Why did you do that; why did you reject his request?

Mr. FRICK. Maybe I can answer that best, Senator. We reviewed that request and his request, in reviewing with the staff, was based largely on that it would give some time for us to meet with concerned landowners. We plan to do that. We have been continuing to meet with those concerned landowners within the identified areas, particularly Maxville and the Nine Mile area and St. Regis. We reviewed the schedule and amount of information we had and came to a determination not to extend that comment period. It had been extended to 60 days from the normal 30- to 45-day period. Our schedule was pretty tight and we tried to accommodate all the concerns in the Congressman's request.

Senator BAUCUS. How many times has BPA extended environmental impact statement comment periods in the past?

Mr. FRICK. It's a pretty routine matter to extend them from the 45- to the 60-day period, and in this case we made this decision even before then, to extend the normal comment period for an additional 15 days.

Senator BAUCUS. So as I understand it, this is—how many days had already transpired by the time Congressman Williams made his request?

Mr. FRICK. I think the time when his request came in was about 50 days in that period.

Senator BAUCUS. Fifty?

Mr. FRICK. Yes; about 50 of the 60 days had elapsed; somewhere in there. I'm not specific on that.

Senator BAUCUS. Do you recall how many days he wanted to extend the period?

Mr. FRICK. No; I don't remember exactly what he said.

Senator BAUCUS. Could you please provide a breakdown for the record together with the reasons for denial?

Mr. FRICK. Yes; we'll be happy to provide that.

Senator BAUCUS. Are you saying that Congressman Williams' request would have caused delays in the timetable you're on?

Mr. FRICK. We felt it would jeopardize the ability to complete the schedule. In reviewing the request with his staff, the purpose of his request was specifically a request that some landowner groups, to let them work with us. We assured them that we would continue to work with them. I came over and met with some of the people from Maxville and assured them that we would continue to meet with them and work this out.

Senator BAUCUS. Do you know whether he's satisfied with that resolution? Have you heard from him?

Mr. Frick. No; we didn't hear back from his staff after that. They were present—or met with us, some of his staff and some of your staff when we met with the landowner group.

Senator Baucus. I ask the question because it just seems to me that it's a matter of good relations, if nothing else, when a Member of Congress seeks a request to extend a time for comment——

Mr. Frick. We tried to——

Senator Baucus. So long as it's a reasonable request——

Mr. Frick. We tried to give it real serious——

Senator Baucus. Particularly when this line affects western Montana and the first district so directly.

Mr. Frick. I think we assured the Congressman's staff that any additional information that came in through these contacts and meetings would be fully considered in the decision process.

Senator Baucus. Does BPA have a broad based citizens advisory council representing diversed interests in the Pacific Northwest?

Mr. Johnson. Broad based——

Senator Baucus. Advisory council representing diversed interests in the Northwest. Any kind of broad based advisory council of any kind?

Mr. Johnson. I would say yes to that. As I perform the role and the responsibilities of the administrator, we have a host of forums, I consider it, of advisers and counselors, including our Senators and Congressmen.

Senator Baucus. Do you have any relatively formal or informal councils; is there a group that has a name?

Mr. Johnson. Now, again, I'll keep my answers short, but the Regional Planning Council is to a very large degree just such an entity, and we will be seeking them for advice and counsel——

Senator Baucus. Any others?

Mr. Johnson. PNUCC, the ICP, NWPPA, all these are associations of various interest groups, utilities or otherwise, with whom we do business and whose affairs we impact by our decisions.

Senator Baucus. Why did BPA decide to halt the acquisition or alternative renewable energy sources?

Mr. Johnson. We have not halted that.

Senator Baucus. Have you slowed it down?

Mr. Johnson. We have elected in the light of our surplus mode that we find ourselves in at the present time to move cautiously in the area of the acquisition of renewable resources. We are proceeding with the same pace and the same commitment without change or interruption in the area of conservation. But with respect to renewable resources, which is a second priority in the Regional Power Act which the administrator is to use in acquiring resources to meet load, we have felt that if there is not load, that we should move cautiously to make sure that those we do buy are obviously cost effective to meet the test of the Regional Act, but we have not stopped those purchases. It is contemplated that there will be purchases made. There has been one hydro resource purchased, some lowhead bulb turbines, some 27 megawatts, from the city of Idaho Falls. It is a bargain, under the avoided cost that we have at the present time, and also at a price which if it is surplus, we can sell outside the region all inuring to the benefit of the ratepayers within the region, if in fact it is surplus.

Senator BAUCUS. So you have delayed the acquisition program; is that correct?

Mr. JOHNSON. We've extended it. It was originally planned——

Senator BAUCUS. Is that like a revenue enhancement?

Mr. JOHNSON. We were in a deficit situation and certainly when I became the administrator I was convinced that we had to move aggressively in the acquisition of cost-effective renewable resources. We find ourselves suddenly in a substantial surplus situation because of a number of circumstances. That changed the situation and I was admonished and instructed in every act that controls Bonneville to administer its affairs in a businesslike way, and the worse thing would be to go out and spend ratepayer's money—I don't spend any money that the ratepayers don't pay. For the administrator to commence to expend funds, it would drive costs up for which there would not be an offsetting revenue. I didn't think it met the test of sound business principles.

Senator BAUCUS. Would you tell me with whom you consulted in making that decision?

Mr. JOHNSON. That decision is being reviewed at the present time. We have had hearings throughout the entire Pacific Northwest, workshops, where we discussed this phenomenon, this new discovery, these changing conditions that we found ourselves in after the several forecasts we referred to determined that we were in surplus. We've gone to the Regional Council, we've gone to the PNUCC, which is all the utilities in the region, and we're gone throughout the four State region seeking advice and counsel with respect to that subject.

Senator BAUCUS. Did you specifically discuss the proposal to extend the acquisition program?

Mr. JOHNSON. Yes, we——

Senator BAUCUS. I mean, you discussed these forecasts and so forth, but I'm wondering whether you specifically discussed the decision to extend the acquisition?

Mr. JOHNSON. I'm going to ask Walt Pollock to expand on this a little bit.

Mr. POLLOCK. Senator, we've had a number of discussions, and at the present, we have a proposal that expresses this policy for public review and comment, and that comment period is still open. We've received approximately 30 comments already and reviewed them. Many of them are thoughtful and we'll be looking at them carefully.

Senator BAUCUS. Are you convinced that the BPA decision to halt or to extend acquisitions does not violate the Public Utility Regulatory Policies Act?

Mr. POLLOCK. Yes, we are, Senator.

Senator BAUCUS. I'm not sure that I agree, but I'll have more detailed questions for you on that at a later point. Will you briefly describe BPA's process in developing its annual budget, including rough timetables for each step?

Mr. JOHNSON. The process is ongoing. I would say it begins with our long-range planning within the agency, which identifies strategic choices and major objectives and goals of the agency. That then is interpreted into programs which ultimately find expression——

Senator BAUCUS. Just so we save time, let's take the 1984 budget. Just walk me through step by step in developing the 1984 budget.

Mr. Johnson. Well, at the present time we have submitted detailed budgets to the department and——

Senator Baucus. This is the 1984 budget?

Mr. Johnson. The 1984 budget. It's being reviewed at the present time by the Department of Energy and it will be forwarded to the OMB, I am told, in the next week or two. I cannot tell you the precise step-by-step detail-by-detail procedure with respect to the budget process, but in general, we have completed ours which has been in process for several months now and it is submitted to the Department of Energy, which has assessed it and reviewed it and done their tests. It was being forwarded to the Office of Management and Budget in the next 2 or 3 weeks.

Senator Baucus. And after the OMB review, what next?

Mr. Johnson. It then goes, I am told, to Congress and I think in the spring, March or April, we'll have our hearings before the House Appropriations and Senate Appropriations Committees.

Senator Baucus. Would you provide a more detailed description of that process for the record, please?

Mr. Johnson. I'd be happy to.

Mr. Baucus. Thank you. Has anyone outside BPA reviewed your budget calculations in any form other than the Department and other than OMB?

Mr. Johnson. The budget process is very complex, and it is primarily a summary of a number of things that have gone on. The billing credit policy is one of the incentives provided under the Regional Act. It is subject to a public process review, so in that sense, everybody throughout the region has a hand in developing this particular mechanism which is going to become a method by which the cost-effective conservation and renewable resources can be acquired. Our rate process is a public process. That's the revenue side of our budget. We are self-financing. We must recover all the costs of Bonneville as well as the 30 Federal dams through our rate process, so that rate process is a review of the budget in detail, in great specificity. How much are we going to spend, for instance, on conservation. Conservation programs are subject to a public process. How much are we going to spend on these renewable resources.

Senator Baucus. So what you're saying is the State regulatory agencies—the commissions, State utility commissions, utility regulatory commissions—are the groups you're talking about now?

Mr. Johnson. No; I don't—it's the PUC's of the respective States, the public utility commissions of the respective States. They have an opportunity because it's a public process and they can make their input, but our customers and all parties in interest in our rate process through a very public forum have an opportunity to make input to that process.

Senator Baucus. I'm talking about the overall budget. Is your overall budget reviewed by any outside person or group?

Mr. Johnson. Not as the budget, but the budget is the consequence of the rate process because it is the revenue necessary to cover those costs and those costs are investigated and discussed and debated at length during that process, so I would describe that review—it's not a formal review process after it's all assembled.

Senator Baucus. So do any utility groups or utility organizations or consumer groups or any groups, farmers, conservation groups, any groups have an opportunity to review your budget before it is submitted to the Congress?

Mr. JOHNSON. Not as it's finally assembled. As a matter of fact, that becomes a matter of confidentiality between ourselves and the OMB in accordance with the instructions from that body, but through these other processes that I described which builds the budget, they have every opportunity to make input.

Senator BAUCUS. Could you supply for the record a more detailed statement on the confidentiality as BPA sees it. Do you circulate the budget once it is presented to Congress or do you issue a press release describing it?

[See under question 12 in the question-and-answer section of the appendix.]

Mr. JOHNSON. When the budget is presented to Congress, it becomes a public document and it's available for everyone to review.

Senator BAUCUS. But do you take the initiative to circulate it to any person, any group, anyone?

Mr. JOHNSON. I'm not aware of us taking the initiative to circulate it, but I know that it is published and we identify the major amounts, which generally is the subject of a news release.

Senator BAUCUS. Is there any circulation list?

Mr. JOHNSON. We'll supply that for the record.

[The circulation list, appendix P, is on file with the subcommittee.]

Senator BAUCUS. Do you solicit comments on your budget at any point?

Mr. JOHNSON. Once again, through the rate process and these others that I referred to that determine the major cost items that drive the budget, yes, there are many opportunities for input and comment.

Senator BAUCUS. I don't quite understand your point. You say many opporunities for the overall BPA budget?

Mr. JOHNSON. Yes.

Senator BAUCUS. Or whether the rates should be increased?

Mr. JOHNSON. Well, no——

Senator BAUCUS. I don't quite get the point. What groups are you talking about here?

Mr. JOHNSON. Bonneville is a self-financing agency.

Senator BAUCUS. Right.

Mr. JOHNSON. We do not live on an appropriation. So the rate filing process is one where all costs of Bonneville in all sectors are laid before the public for review, and this is the environmentalists, the fisheries interests——

Senator BAUCUS. Give me some examples that are laid before the public.

Mr. JOHNSON. The whole cost side of our rate case is laid before the public. In this last rate case, as a for instance, Senator, I think there were 230 million——

Senator BAUCUS. How about the expenditure side?

Mr. JOHNSON. That's the side I'm talking about, the expenditure side.

Senator BAUCUS. You have revenues and you have expenditures.

Mr. JOHNSON. To determine what the rates are going to be, you must first determine your expenditures, so the attacks in the review are upon the expenditures, because once they're determined, then we proceed into the formula of the particular design of the rate itself, but in this last rate process alone, Bonneville's "budget," if you will, I'll use that in quotes, was reduced by $230 million as a consequence of recommendations by the general public in the rate case.

Senator BAUCUS. Well, I know you have an appointment with the Governor so I won't take any more time. I want to thank you very much for coming, Mr. Johnson, and all additional questions I'll submit for the record, and I understand too that your staff will be available throughout the day in case we have any questions; is that correct?

Mr. JOHNSON. Yes.

Senator BAUCUS. OK, we've scheduled a short recess at this point. I'd like to thank Mr. Johnson and the staff for coming and we'll recess for about 15 minutes.

[The prepared statement and submissions of Mr. Johnson follow:]

PREPARED STATEMENT OF PETER T. JOHNSON

Senator Baucus and distinguished guests,

I am Peter T. Johnson, Administrator of the Bonneville Power Administration (BPA), an entity of the Department of Energy. Several members of the Bonneville staff are with me today. They will respond to questions you may have in specific subject areas. Seated with me here are Mr. Omar Halvorson, assistant general counsel for BPA; Mr. Jerry Frick, project manager for the Colstrip transmission construction program and engineering manager for BPA; and Mr. Walt Pollock, assistant power manager of our Office of Power and Management Resources.

I am pleased to have this opportunity to appear before you to discuss BPA's program and activities. It is a pleasure to inform you on the status of our program, the problems we have encountered, and the progress we have made toward solutions.

In my statement today, I will highlight our progress in improving our working relationships with the State of Montana and tell you how BPA is responding to a number of legitimate concerns about the construction of the Colstrip transmission facilities. We are keenly aware of the social as well as the physical impacts these transmission facilities are having upon the people of Montana and upon Federal/State relations. We are making every effort to respond to these concerns as they have been expressed by Montana's public officials, local communities, individual landowners, or the general public.

Congressional Authorization to Construct Colstrip Transmission

At this point, I believe it would be useful to review briefly the congressional authorities under which BPA was given responsibility for planning and developing this transmission project. BPA's acceptance of its present role resulted from a 1977 request from the Montana Power Company and other participants in the Colstrip Generating Units Nos. 3 and 4 asking BPA to exercise its authority to construct transmission facilities under the Federal Columbia River Transmission System Act of 1974. Section 4 of this Act provides that BPA shall construct transmission additions and replacements needed to: (1) integrate and transmit electric power from existing or additional Federal or non-Federal generating units and (2) provide interregional transmission facilities.

Based on this existing authority, the Congress passed House Joint Resolution 1139 in October 1978, which ultimately became Public Law 95-482. It provided for the construction of facilities to integrate new generating facilities at Colstrip, Montana, into BPA transmission grid.

The Critical Importance of Colstrip Transmission

Electric loads in the Pacific Northwest are growing at a slower rate than was predicted in the load projections of the 1970's. This rate of growth and the lower forecasts that are being made for future years have prompted many persons to question the need for generating resources and transmission facilities scheduled for construction in the next 10 years.

I wish to emphasize here today that the Pacific Northwest faces significant deficits of energy in the late 1980's and early 1990's. The Colstrip generating resources and Colstrip transmission lines, without which the electricity produced cannot be conveyed to load centers, have figured prominently in every analysis of resource and transmission requirements made in recent years.

Without Colstrip Generating Units Nos. 3 and 4, the region under some forecasts would face deficits of firm power as early as 1983. In other words, without Colstrip units 3 and 4, we would go from a surplus to a deficit situation.

All of the studies made have assumed that Colstrip units 3 and 4 will come on line as scheduled. Our analyses indicate also that Colstrip units 3 and 4, which are now approaching the final stages of construction, will be cost-effective. Any delays in their construction will surely increase the long-range costs of power required for Northwest loads.

In addition to transmitting the output of Colstrip Generating Units 3 and 4, the Colstrip transmission facilities will strengthen the transmission system within Montana in that outages and loss of load will be reduced. Reliability of service will be improved, for example, for Missoula, Anaconda, Great Falls, and their surrounding areas. Additional transmission will be available for emergency power transfers of various kinds.

A significant portion of the output from Colstrip units 3 and 4--which have a rated capacity totaling 1,400 megawatts--will go to consumers in Montana. Two investor-owned utilities who are participating in the construction of these generating units--Montana Power Company and Pacific Power & Light Company--serve retail users of electricity in Montana. We estimate that the Colstrip lines will supply 560 megawatts for the Montana loads of these two companies. Present loads of Pacific Power in northwest Montana are being served from the west coast by generation that includes the large coal-fired generating plant at Centralia, Washington, in which Pacific Power is a participant.

Recent discussions between the Western Area Power Administration (WAPA) and BPA have focused on benefits of Colstrip transmission to WAPA and its ten utility customers in Montana. BPA staff members have been meeting with WAPA planners to discuss the differences in streamflows and operations of the Columbia and Missouri hydro systems. These differences will permit exchanges and sales of power between WAPA and BPA.

It appears that about 200 megawatts is available for exchange. This figure, incidentally, closely approximates the unused capacity projected for the completed lines. This capacity will be available to transmit displacement power. It will also provide purchasing flexibility and benefit WAPA customers by making surplus secondary power from the Columbia River power system available to them. Both hydro systems will become more efficient. River operations will be improved.

Meeting Montana Concerns

The Bonneville Power Administration is striving very hard to address the concerns of Montana--its people, its elected officials, and its government--with respect to the Colstrip project. At one point, it was you, Senator Baucus, who suggested that we might better achieve this end by establishing a field office in Missoula. You suggested that a Missoula office would be accessible to more persons than BPA's District Office in Kalispell and that it would be closer to persons actually affected by the Colstrip lines.

Pursuant to your suggestion, BPA established a field office at Missoula in May 1981. The office has since become an important source of information for local individuals, groups, and communities. It has given BPA a point of contact that has improved our understanding of Montana's concerns. Often, our staff in Missoula has forwarded information on local concerns to the senior staff at BPA's headquarters in Portland, enabling BPA to respond more quickly.

We have since moved the location of the District Office from Kalispell to Missoula, because it is more centrally located. Also, a recent analysis showed that travel costs of the entities who do business with us could be reduced if the Montana District Office were moved to Missoula.

Our Missoula staff periodically publishes a newsletter which is sent to some 2,500 residents, landowners, and groups throughout Montana. This newsletter has been well received because it is a source of factual information on BPA's policies, plans, programs, and progress. As a result, we believe BPA's relationships in the State have greatly improved.

Numerous meetings have been held in Montana since the Colstrip transmission project was first initiated more than 9 years ago. We have compiled a chronological list of all the Montana public hearings, group discussions, and public meetings that BPA has sponsored or participated in during the past 4-1/2 years. A total of 149 such meetings were held in 27 communities in Montana. I will enter a list of these meetings for the record. I believe it attests to BPA's commitment to reach out to the public, to listen, and to respond.

The great preponderance of these meetings were held to discuss the planning of the Colstrip Transmission Project, its alternative routings, and the environmental factors involved. Other subjects discussed included BPA's rates, billing credits, energy conservation programs, impact aid, and power sales contracts. In the main, however, we sponsored these meetings to gather information and comments on possible environmental impacts and to develop a record on which the land management agencies and the BPA staff's decision-makers, including myself, could base decisions as to the route. These decisions, of course, are also being based on engineering and economic considerations. Our objective is to choose the most acceptable route for reliable, cost-effective transmission facilities.

In response to public concerns, BPA has made a significant number of substantial routing changes. These changes have added more than 7 miles of transmission line and $5 million in costs to the section of line between Townsend and Garrison. The changes were made to accommodate concerns raised by Montana landowners.

In addition to the record of formal and informal public meetings, our staff in western Montana has recorded more than 700 personal, mail, or telephone contacts with individual landowners and other concerned Montanans over the past 2 years. Unrecorded contacts probably boost this number to well over 1,000.

Relations with the State of Montana

Since becoming the BPA Administrator, I have emphasized the need for Bonneville to continue its strong commitment to involve State

Governments—within the region we serve--in the evaluation and siting of transmission facilities. We have worked hard in past months at developing a partnership with Montana's Board and Department of Natural Resources and Conservation, its Board and Department of Health and Environmental Sciences, and its Department of Fish, Wildlife and Parks. This effort has had a significant impact on the agencies' staffs, funds, and involvement with the public. To assist the State in its evaluation efforts and to assure BPA's compliance with the State's Major Facility Siting Act, BPA recently entered into an agreement with the State to provide $370,000 to facilitate the State's review.

Impact Aid. Under current law, BPA is not authorized to make payments in lieu of taxes to local entities. However, following passage of the Regional Act, it has the authority to make impact aid payments. We are in the process of implementing an impact aid program. Pursuant to this authority, BPA initially proposed to local governments that impact aid be a reimbursement for actual costs. After analyzing this proposal, local entities objected to this approach and proposed a number of changes.

In addition, Governor Schwinden, Secretary of State Jim Waltermire, and Attorney General Mike Greely were instrumental in improving the original concept. Each of these officials asked us to simplify our approach, which they said was too bureaucratic, and thus ease the administrative burden that would be placed on local governments. We did so. Governor Schwinden suggested that provision be made for payments to local governments which experience exceptional costs due to BPA facilities. This, too, has been arranged. In these and other modifications, BPA has attempted to serve the best interests of the local governments.

The new approach improves the process of making payments to the local governments and bases these payments on a mathematical formula. The payments will be based on costs but will be estimated for administrative convenience. BPA anticipates that the payments will be made prospectively—in other words, in advance—with any adjustments taking place at the end of the payment year.

Any local government that has direct costs greater than the formula payment need only to identify those to BPA to receive payment therefore. The underlying formula would be developed on information which will be submitted by the local governments to BPA.

We intend to announce a revised impact aid proposal within the next 2 weeks. It, like our previous proposal, will be subjected to public review and comment. The goal of this program is to properly compensate local governments for line construction impacts. However, BPA's fiscal responsibility to its ratepayers cannot be compromised; hence, any aid formulas must meet the test of prudent fiscal management.

Memorandum of Understanding. BPA has collaborated with the State of Montana in drafting a Memorandum of Understanding which is going into effect today, August 31, 1982. My purpose in requesting that I be excused at the conclusion of my testimony is to meet with Governor Ted Schwinden that he and I might sign the Memorandum.

The Memorandum provides a basis for more explicit agreements. One such agreement, an agreement to cooperate fully by jointly studying and evaluating alternative locations for transmission lines, has been developed. It also will become effective today.

The Memorandum is an example of how BPA in the past year or so has intensified its efforts to work harmoniously with the State of Montana. We seek a relationship in which there is a true spirit of cooperation. We believe our program is matched by similar intentions on the part of the State, and we believe this mutual effort is succeeding. We have developed closer working relationships with the State and its agencies. To this end, BPA recently established an office in Helena. Mr. Randy Moy, a former administrator in the Montana Department of Natural Resources and Conservation, is in charge of the office. He is coordinating our activities with State officials and agencies. Mr. Moy's presence in Montana's capital city should be helpful to all concerned.

Although the office in Helena is new, its location here is consistent with a BPA tradition in that the agency has continually sought the advice and counsel of other government entities. You may recall that the steering committee for the Garrison-Spokane environmental impact statement involved a number of agencies. They included the U.S. Forest Service, Bureau of Land Management, State of Montana, State of Idaho, Bureau of Indian Affairs, Confederated Salish and Kootenai Tribes of the Flathead Reservation, U.S. Fish and Wildlife Service, Army Corps of Engineers, National Park Service, the Washington Water Power Company, and the Bonneville Power Administration.

Cooperative Activities. Bonneville is presently providing $250,000 to the Department of Natural Resources and Conservation to promote energy conservation. The Department will work directly with local governments, small consumers, and electric cooperatives.

BPA has also provided $150,000 to the Department to determine the cost effectiveness of converting biomass, especially wood residues in western Montana, to an energy source.

BPA is participating with the Montana Department of Fish, Wildlife and Parks and the U.S. Forest Service in an elk study. BPA has provided $100,000 to monitor the effects of Colstrip transmission on the elk herd near Boulder.

BPA is also furnishing $340,000 this fiscal year for two ongoing fisheries studies and plans to add to this sum in the future. One of these studies addresses the cumulative fish and wildlife impact of small hydro sites on the Swan River. The other addresses effects of the operations of Kerr and Hungry Horse dams on the reproductive success of Kokanee in the Flathead River system.

The Colstrip transmission construction program has generated a significant amount of litigation involving the concept of Federal supremacy. The cases that have been decided have a major impact on Federal/State relationships.

As you know, there is a long judicial history involving many instances in which the issue of Federal supremacy has been litigated and judicially defined. Included among those cases is one that went to the Court of Appeals for the Ninth Circuit from the State of Washington, three decisions in the United States District Court for the District of Montana decided by District Court Judge James F. Battin, and a recent decision from the Court of Appeals for the Eighth Circuit.

The concepts contained in these cases, I am advised, all follow a similar line of reasoning. BPA's assistant general counsel, Mr. Halvorson, will make a brief presentation regarding these cases and their application to BPA activities in the State of Montana at the conclusion of my remarks. He will also be available for questions. Summaries of these cases will be presented for inclusion in the record.

Pacific Northwest Electric Power Planning and Conservation Act

Almost 2 years have passed since the Congress enacted the Pacific Northwest Electric Power Planning and Conservation Act. This legislation, which is known as the Regional Act, has drawn Montana closer to her three sister states in the Pacific Northwest Region. Benefits, including greater amounts of low-cost power from the Federal Columbia River Power System, are being extended to Montana.

The Regional Act authorizes an exchange of power with the region's investor-owned utilities to provide rate relief to residential and farm customers. Montana Power Company and Pacific Power & Light Company are among the utilities who have been offered contracts for such exchanges with BPA. Both of these utilities serve homes and farms in Montana. This arrangement in effect melds higher and lower cost supplies of energy. Pacific Power has signed an exchange agreement with BPA. Between October 1981 and July 1982, Pacific Power's Montana customers received more than $1.5 million in rate relief. Montana Power Company has not yet signed an exchange agreement. Both companies, however, have signed the new 20-year power sales contracts with Bonneville.

An important element of the Regional Act is the consent of Congress for the Pacific Northwest States to create the Pacific Northwest Electric Power and Conservation Planning Council. The Council consists of eight members. Each Governor of the four Northwest States appoints two members. This body under terms of the Act is responsible for drawing up a long-range plan by April 1983 for the future development of electric energy in the Northwest. It is also responsible for developing a set of recommendations to enhance fish and wildlife resources of the Columbia River and its tributaries.

It has been previously suggested that the Council, because of the breadth of its planning responsibilities, has some implied or residual supervisory authority over the Bonneville Power Administration. There is, however, no basis for such authority in the Act.

If such authority had been given to the Council, the Congress would first have had to make the Council a Federal entity and its members would then have had to be appointed in conformity with the Appointments Clause of the U.S. Constitution. This serious constitutional problem was considered by the Congress in its decision to establish the Council in its present form.

As intended by the framers of the Regional Act, the Council is inherently a planning body with certain specified review obligations. BPA is the implementing or action agency, and as such is legally responsible only to Congress and the Executive Branch. Programs of the Council and BPA are to complement one another; neither is subordinate to the other. From Bonneville's perspective, this concept appears to be working well.

Status of Construction and Siting

Contractors' crews began constructing Garrison Substation and two segments of the double-circuit, 500,000-volt transmission lines between Townsend and Garrison in mid-July. This work is being accomplished under three separate contracts. The actual construction of these facilities began after easements were received from the Montana State Land Board and the Board of Natural

Resources and Conservation determined that BPA transmission lines are in compliance with the substantive provisions of the Montana Major Facility Siting Act. Their finding, however, did not include the proposed Missouri River crossing. This crossing will not be built until the issue of its location is resolved.

A fourth contract for the third and final segment of the 97 miles of transmission lines from Townsend to Garrison was awarded yesterday. BPA expects the transmission circuits between Townsend and Garrison to be completed before October 1983 when Colstrip Generating Unit No. 3 is scheduled to begin producing electricity.

As you know, these circuits are to be extended from Garrison west to the existing 500,000-volt line serving northwest Montana. One circuit will continue to the vicinity of Spokane. At the present time, we are evaluating alternative routes for the section from Garrison west, a section which is approximately 260 miles long and which is broadly referred to as Garrison-Spokane. Several feasible, alternative routes, including alternative center lines suggested by members of the public, are now under consideration. The final selection of a route from Garrison to Spokane will be made early next year after the final environmental impact statement is published.

Conclusion

This concludes my prepared remarks. I or members of my staff would be pleased to respond to any questions you may have. Following that, Mr. Halvorson will present his remarks.

BONNEVILLE POWER ADMINISTRATION

DEPARTMENT OF ENERGY

MEMORANDUM

FEDERAL SUPREMACY - STATE AND FEDERAL RELATIONSHIP

Omar W. Halvorson
Assistant General Counsel
Bonneville Power Administration
August 31, 1982

I. FEDERAL SUPREMACY: A GENERAL STATEMENT OF THE DOCTRINE

A. The Constitution

The Federal Supremacy Doctrine is derived from Article VI, Clause 2 of the Constitution of the United States. That clause, commonly referred to as the Supremacy Clause, states that:

> "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding."

B. Early Judicial Construction

In the early 1800's, both Congress and the judiciary considered the question of the proper role for the Federal and State governments. Chief Justice John Marshall, in two opinions interpreting the Supremacy Clause, answered the question by firmly implanting the doctrine of Federal supremacy as the law of the land. Although subsequent decisions have further interpreted the scope of Federal supremacy, the basic principles set forth by Justice Marshall are as applicable today as they were when he wrote them.

1. McCulloch v. Maryland, 4 Wheat 316, 4 L.Ed. 579 (1819)

The first case is McCulloch v. Maryland, where the question before the Supreme Court was whether the State of Maryland had power to tax a branch of the Bank of the United States, a bank incorporated by Congress. Relying upon the Supremacy Clause, Justice Marshall wrote the oft-stated words:

> "This great principle is, that the constitution and the laws made in pursuance thereof are supreme; that they control the constitution and laws of the respective states, and cannot be controlled by them." McCulloch v. Maryland, 4 L.Ed. at 606.

From this principle, Justice Marshall deduced the following corollary.

> "In making this construction, no principle not declared can be admissible, which would defeat the legitimate operations of a supreme government. It is of the very essence of supremacy to remove all obstacles to its action within its own sphere, and so to modify every power vested in subordinate governments as to exempt its own operations from their own influence. This effect need not be stated in terms. It is so involved in the declaration of supremacy, so necessarily implied in it, that the expression of it could not make it more certain. We must, therefore, keep it in view while construing the constitution." McCulloch v. Maryland, 4 L.Ed. at 606.

2. Gibbons v. Ogden, 9 Wheat 1, 6 L.Ed. 23 (1824)

The second case is Gibbons v. Ogden. Before the Supreme Court was the question of conflicting Federal-State regulations. Congress, pursuant to its Commerce Clause power, had granted Gibbons the exclusive privilege of running steamships between New York City and New Jersey. The State of New York had granted a similar exclusive privilege to Ogden's predecessors. The Supreme Court held that New York's laws were null and void insofar as they applied to steamships licensed by the United States.

> "In argument, however, it has been contended that if a law, passed by a state in the exercise of its acknowledged sovereignty, comes into conflict with a law passed by Congress in pursuance of the constitution, they affect the subject, and each other, like equal opposing powers.
>
> "But the framers of our constitution foresaw this state of things, and provided for it, by declaring the supremacy not only of itself, but the laws made in pursuance of it. The nullity of any act, inconsistent with the constitution, is produced by the declaration that the constitution is supreme law. The appropriate application of that part of

> the clause which confers the same supremacy on laws and treaties, is to such acts of the state legislatures as do not transcend their powers, but, though enacted in the execution of acknowledged state powers, interfere with, or are contrary to the laws of Congress, made in pursuance of the constitution, or some treaty made under the authority of the United States. In every such case, the act of Congress, or the treaty, is supreme; and the law of the state, though enacted in the exercise of powers not controverted, must yield to it." Gibbons v. Ogden, 6 L.Ed. at 73.

II. APPLICATION OF THE FEDERAL SUPREMACY DOCTRINE

A. State Environmental Regulation of Federal Agencies

Since the early 1970's, after Congress enacted national laws aimed at environmental protection, the Supreme Court has had the opportunity to review the Federal Supremacy Doctrine. Two decisions written by Justice White reaffirm the principles established by Chief Justice Marshall.

1. Hancock v. Train, 426 U.S. 167, 48 L.Ed.2d, 555 (1976)

The first case is Hancock v. Train. The issue was whether the Tennessee Valley Authority and Atomic Energy Commission, which operated facilities emitting air pollution, were required to obtain operating permits from the State of Kentucky. The Supreme Court, construing the Clean Air Act as then amended, found that the Federal agencies were not subject to the State permit process because Congress had not waived Federal supremacy.

> "Taken with the 'old and well-known rule that statutes which in general terms divest pre-existing rights or privileges will not be applied to the sovereign' 'without a clear expression or implication to that effect,' this immunity means that where 'Congress does not affirmatively declare its instrumentalities or property subject to regulation,' 'the federal function must be left free' of regulation. Particular deference should be accorded that 'old and well-known rule' where, as here, the rights and privileges of the Federal Government at stake not only find their origin in the Constitution, but are to be divested in favor of and subjected to regulation by a subordinate sovereign. Because of the fundamental importance of the principles shielding federal installations and activities from regulation by the States, an authorization of state regulation is found only when and to the extent there is 'a clear congressional mandate,' 'specific congressional action' that makes this authorization of state regulation

> 'clear and unambiguous.'" Hancock v. Train, 426 U.S. at 179, 48 L.Ed.2d at 565 (footnotes omitted).

2. EPA v. State Water Resources Board, 426 U.S. 200, 48 L.Ed.2d 578 (1976)

The second case is EPA v. State Water Resources Board, a sister case of Hancock v. Train. At issue was whether Federal agencies operating facilities emitting water pollution were required to obtain a State NPDES permit under the Federal Water Pollution Control Act. Like the holding in Hancock v. Train, the Supreme Court did not find a waiver of Federal supremacy.

> "Our decision in this case is governed by the same fundamental principles applied today in Hancock v. Train, ante, at 179, 48 L Ed 2d 555: Federal installations are subject to state regulation only when and to the extent that congressional authorization is clear and unambiguous. As in Hancock v. Train, we must determine whether Congress has subjected federal installations to the degree of state control urged by the States." EPA v. State Water Resources Control Board, 426 U.S. at 211, 48 L.Ed.2d at 587.

3. Congressional Waiver of Federal Supremacy

In 1977, Congress responded to the Hancock v. Train and EPA v. State Water Resources Control Board decisions by amending both the Clean Air Act and the Federal Water Pollution Control Act. These amendments show the type of language Congress uses when it intends to waive Federal supremacy. The amendatory language provides "'a clear congressional mandate' that makes this authorization of state regulation 'clear and unambiguous.'" Hancock v. Train, 426 U.S. at 179, 48 L.Ed.2d at 565 (footnotes omitted). The statutory language before the Supreme Court in Hancock v. Train stated that:

> "Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge of air pollutants, shall comply with Federal, State, interstate, and local requirements respecting control and abatement of air pollution to the same extent that any person is subject to such requirements." 42 U.S.C. § 1857f (1976).

After the 1977 amendments to the Clean Air Act, the statute states that:

> "Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge of air pollutants, and each officer, agent, or employee thereof, shall be subject to, and comply with all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity. The preceding sentence shall apply (A) to any requirement whether substantive or procedural (including any recordkeeping or reporting requirement whatsoever), (B) to the exercise of any Federal, State, or local administrative authority, and (C) to any process and sanction, whether enforced in Federal, State, or local courts or in any other manner." 42 U.S.C. § 7418(a) (formerly 42 U.S.C. § 1857f) (emphasis supplied).

Congress enacted a similar amendment to the Federal Water Pollution Control Act, found at 33 U.S.C. § 1323.

B. State Taxation

The principles of Federal supremacy set forth in McCulloch v. Maryland also apply to State taxation of Federal property or a Federal instrumentality, like BPA. The general rule is that a Federal agency is immune from State and local taxes absent a congressional waiver of Federal supremacy. That immunity is implied from the Constitution itself; "the necessity of preserving the independence of the dual system of Federal and state government under our constitutional system." 71 Am. Jur. 2d § 221 (footnote omitted). Two Supreme Court cases highlight this general rule.

1. Mayo v. United States, 319 U.S. 441, 87 L.Ed. 1504 (1943)

The issue in this case was whether the State of Florida could enforce an inspection fee for fertilizer sold or distributed within the State. The Secretary of Agriculture, pursuant to a congressional directive, purchased fertilizer outside the State for distribution within the State. Mr. Justice Reed, in upholding the immunity of the Federal agency from State taxation, relied upon the Supremacy Clause and stated that:

> "It lies within congressional power to authorize regulation, including taxation, by the state of federal

> instrumentalities. No such permission is granted here. . . .
>
> "These inspection fees are laid directly upon the United States. They are money exactions the payment of which, if they are enforceable, would be required before executing a function of government. *Such a requirement is prohibited by the supremacy clause.* We are not dealing as in Graves v. New York, supra, with a tax upon the salary of an employee, or as in Alabama v. King & Boozer, 314 US 1, 86 L ed 3, 62 S Ct 43, 140 ALR 615, with a tax upon the purchases of a supplier, or as in Penn Dairies v. Milk Control Commission, No. 399, October Term. 1942, decided March 1, 1943 [318 US 261, ante, 748, 63 S Ct 617] with price control exercised over a contractor with the United States. In these cases the exactions directly affected persons who were acting for themselves and not for the United States. These fees are like a tax upon the right to carry on the business of the post office or upon the privilege of selling United States bonds through federal officials. Admittedly the state inspection service is to protect consumers from fraud but in carrying out such protection, the federal function must be left free. This freedom is inherent in sovereignty. The silence of Congress as to the subjection of its instrumentalities, other than the United States, to local taxation or regulation is to be interpreted in the setting of the applicable legislation and the particular exaction. Shaw v. Gibson-Zahniser Oil Corp. 276 US 575, 578, 72 L ed 709, 712, 48 S Ct 333. But where, as here, *the governmental action is carried on by the United States itself and Congress does not affirmatively declare its instrumentalities or property subject to regulation or taxation, the inherent freedom continues.*" *Mayo v. United States*, 319 U.S. at 446-448, 87 L.Ed. 1504-1509 (1943) (emphasis supplied) (footnote omitted).

2. *Reconstruction Finance Corporation v. Beaver County*, 328 U.S. 204, 90 L.Ed. 1172 (1946)

This case involves the type of language used and the extent to which Congress waives Federal supremacy. The question before the Supreme Court was the construction of § 10 of the Reconstruction Finance Corporation Act. In that act, Congress waived Federal supremacy by allowing State taxation of "any real property." Congress expressly excluded State taxation of the franchise, capital, reserves, surplus, income, loans, and personal property of the corporation. The question before the court was whether machinery located in a building constructed by the corporation was real or personal property. The court, finding congressional intent from the statutory language and purposes of the act, followed the State court's holding that the machinery was real property and taxable.

> "The fact that Congress subjected Defense Plant Corporation's properties to local taxes 'to the same extent

according to its value as other real property is taxed' indicated an intent to integrate Congressional permission to tax with established local tax assessment and collection machinery." Reconstruction Finance Corporation v. Beaver County, 328 U.S. at 210, 90 L.Ed. at 1176.

C. Application of FLPMA § 505 to BPA

1. Columbia Basin Land Protection Ass'n v. Schlesinger, 643 F.2d 585 (9th Cir. 1981)

The issue in this case was whether BPA was required to obtain a State certificate, pursuant to the Washington State Energy Facility Siting Act, when building a transmission line subject to the right-of-way requirements of § 505 of the Federal Land Policy Management Act (FLPMA), 43 U.S.C. § 1767. Relying upon the Federal Supremacy Doctrine, the Ninth Circuit Court of Appeals (Ninth Circuit) found that while Congress had intended Federal agencies to meet State substantive standards, Congress did not waive Federal supremacy as to State procedures.

> "Returning to the case at hand, our inquiry is the statutory interpretation of § 505 of FLPMA, specifically the phrase 'compliance with State standards.' We find, first, that this clearly indicates congressional intent that the BPA meet the substantive standards of the State of Washington's Siting Act.
>
> * * * *
>
> "Our next inquiry is whether the BPA also must go through the certification process and get a certificate from the Governor. We hold that it does not. The statute refers to standards, it does not mention procedures. As in Hancock, there is no reference here to complying with all of the state's laws, or with all requirements of a permitting system. The Act only refers to standards. The statute never defines the term, nor does its legislative history, but the normal use of the term, and that used by the Supreme Court in Hancock, and EPA, is 'substantive requirements.'
>
> "Moreover, to require the BPA to receive a state certificate would imply that the state could deny the application, which would given them a veto power over the federal project. This clearly cannot be the meaning that Congress intended. Much stronger language would be needed for us to conclude that Congress was delegating so much power from the federal government to the states. Congress would not delegate such an important function as the decision of whether and where to distribute electric power from federal facilities to total state control in such a brief statement." Columbia Basin Land Protection Ass'n v. Schlesinger, 643 F.2d at 604-605.

2. Citizens and Landowners Against the Miles City/New Underwood Powerline v. Secretary, United States Department of Energy, No. 81-1544, 81-1718 (8th Cir., July 16, 1982) (slip opinion).

The issue in this case was whether the Western Area Power Administration (WAPA), BPA's sister power marketing agency, was required to obtain a State certificate, pursuant to the South Dakota Energy Conversion and Transmission Facility Act, when building a transmission line subject to FLPMA right-of-way requirements. The Eighth Circuit Court of Appeals, following the Ninth Circuit's opinion in Columbia Basin, found that Congress did not waive Federal supremacy as to State procedures.

> "We must reject the Commission's position. If we held that the substantive standards of S.D. CODIFIED LAWS ANN. § 49-41B required WAPA to apply for a state permit, the effect would be to require WAPA to comply with the statute's procedural requirements. We have already concluded that Section 505 of FLMPA, and Section 103 of the Energy act do not evince the necessary congressional intent to delegate to the states such extensive power over whether or where to distribute electrical power from federal facilities.
>
> "Moreover, the Supreme Court has already rejected an argument similar to the one advanced here. In Hancock v. Train, supra, 426 U.S. at 180-181, the Court stated: 'Nor can congressional intention to submit federal activity to state control be implied from the claim that under Kentucky's EPA-approved implementation plan it is only through the permit system that compliance schedules and other requirements may be administratively enforced against federal installations.'
>
> "Finally, if we allowed South Dakota to require WAPA to obtain a state permit because of the structure of its siting law, any state--by adopting a similar statutory scheme--could require federal agencies to fully comply with all substantive and procedural provisions of its laws whenever Congress has directed that its instrumentalities or property be subject to substantive state standards. Such a result is clearly contrary to the holdings of Hancock v. Train, supra, 426 U.S. at 180, and E.P.A. v. State Water Resources Control Board, supra, 426 U.S. at 211, or any traditional interpretation of the Supremacy Clause." Slip Opinion at 23 (footnote omitted).

3. County of Missoula v. Johnson, No. 81-35 (D. Mont., filed April 22, 1981) (Battin, J.)

In the County of Missoula v. Johnson, the issue before the court was whether plaintiffs should be issued a preliminary injunction. In denying plaintiffs' request, Judge Battin discussed the application of FLPMA § 505.

> "Plaintiffs argue that neither the Forest Service nor BLM may issue rights of way to BPA which are not conditioned upon compliance with the Montana Major Facility Siting Act, MCA § 75-20-101 (1981). Compliance with the Montana act would require BPA to seek a certificate of environmental compatibility from the Montana Board of Natural Resources and Conservation. BPA argues, in response, that requiring a state certificate would give the state an impermissible veto power over a federal project. Based upon a recent Ninth Circuit opinion, we find that we must once again agree with BPA.
>
> "Even BPA seems to concede that certain state environmental standards must be complied with. Under the Federal Land Policy Management Act (FLPMA), each right-of-way issued by a federal agency must contain: '(a) terms and conditions which will . . . require compliance with state standards for health and safety, environmental protection, and siting, construction, operation and maintenance of or for rights-of-way if those standards are more stringent than applicable Federal standards . . . .' 43 U.S.C. § 1765 (1976). However, BPA argues that it need not obtain a 'certificate of environmental compatibility and public need' as required by the Montana Major Facility Siting Act, MCA § 75-20-201(1) (1981). Indeed, nothing in FLPMA expressly requires such compliance.
>
> "A recent Ninth Circuit case makes it even clearer that BPA need not apply to the Montana Board of Natural Resources and Conservation for a certificate of environmental compatibility. In Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585 (9th Cir. 1981), BPA sought to construct (and, at the time of the appeal, had already constructed) 500-kilovolt transmission lines across eastern Washington. The landowners over whose lands the lines would pass petitioned to have the construction enjoined because, among other things, no certificate had been issued purusant to the Washington State Energy Facility Siting Act. Although the Ninth Circuit recognized that FLPMA mandated compliance with a state's substantive standards, the Court concluded that a federal agency need not apply for a state certificate. To do so would give the state of Washington 'a veto power over the federal project.' Id. at 605. In like manner, we conclude that in the instant case BPA need not apply for a Montana certificate of environmental compatibility so long as the substantive requirements of the Montana Major Facility Siting Act are met.
>
> "According to plaintiffs, Columbia Basin is 'easily distinguished' because that case addressed construction of a federal transmission line on federal land. In the instant case, BPA stands 'in the shoes of a private utility.' Plaintiffs' Reply Brief, p. 22. According to plaintiffs, the fact that BPA was not privy to the original plans to construct the Colstrip generators negates any federal interest in the Colstrip project. To our minds, however, there is very little difference between the instant case and Columbia Basin. We can find no requirement either in FLPMA or in Columbia Basin that BPA demonstrate a 'federal interest' in the proposed construction. We thus conclude that BPA need not apply for a state certificate of environmental compatibility."

> County of Missoula v. Johnson, No. 81-35, Memorandum Opinion at 16 (Jan. 28, 1982) (Battin, J.) (footnote omitted).

4. State of Montana v. Johnson, No. 81-26 (D. Mont., filed March 26, 1981) (Battin, J.)

The issue in this case was whether BPA had complied with the substantive standards of the Montana Major Facility Siting Act, MCA § 75-20-101 et seq. BPA is building a transmission line in Montana subject to FLPMA right-of-way requirements. During the course of the litigation, Judge Battin has issued two opinions pertinent to this discussion.

a. State of Montana v. Johnson, No. 81-26, Memorandum Opinion (March 4, 1982) (Battin, J.)

The first opinion delineates the issue before the court; that BPA must comply with substantive standards, not procedures.

> "This issue of whether BPA must comply with the Montana Major Facility Siting Act, MCA § 75-20-101 et seq. (1981), was also addressed by this Court in County of Missoula. Relying upon the Ninth Circuit's holding in Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585 (9th Cir. 1981), this Court concluded that 'BPA need not apply for a Montana certificate of environmental compatibility so long as the substantive requirements of the Montana Major Facility Siting Act are met.' Memorandum Opinion, p. 17. We reiterate that view here for the same reasons discussed in County of Missoula, and have granted summary judgment for plaintiffs in the instant case on this issue.
>
> "In County of Missoula, this Court did not address the issue raised here by the State of Montana as to BPA's actual compliance with the substantive requirements of the Montana Major Facility Siting Act. However, this issue was the subject of the following footnote: 'We confess ignorance as to whether BPA's proposed construction plans would comply with the substantive portions of the Montana Major Facility Siting Act. Like the Ninth Circuit in Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585, 602 (9th Cir. 1981), we refrain from addressing the issue since plaintiffs have apparently been unable to discover any specific evidence of noncompliance.' Id. at 17 n. 4. In the instant case, the state alleges noncompliance, Amended Complaint, ¶ 50 at p. 14, and squarely raises the issue.
>
> "Since Columbia Basin makes it plain that even a federal

> agency must comply with state substantive standards in locating a transmission line, the necessity of compliance is not really in doubt. What is disputed (at least in the state's brief) is the meaning of the term 'state substantive standards.' In essence, the state argues that compliance with the substantive provisions of the Montana Major Facility Siting Act requires the same application and decision-making process as does the actual certification process, because this process is as 'substantive' as the Montana act gets. This would make the Columbia Basin distinction between state procedural and substantive laws meaningless for it could once again be placing the veto power of the entire Colstrip project in a state board. Columbia Basin 643 F.2d at 605. Since the Ninth Circuit in Columbia Basin referred to the Washington 'substantive standards' as found in the Washington Administrative Code, we believe the state should also look to the Administrative Rules of Montana § 36.7.304 as defining the Montana 'substantive standards.' If BPA can show that these standards are met, the state has no real cause to complain. However, if the standards have not been complied with, the State of Montana is entitled to the declaratory relief requested.
>
> "Clearly, resolution of this issue requies BPA to submit information to the state so that the state may make a decision upon whether the state's substantive standards have been complied with. The Ninth Circuit in Columbia Basin explicitly required BPA to submit necessary information to the State of Washington:
>
> "'The BPA is not required to go through the entire certification process, but it does need to submit the information which Washington needs to determine whether the BPA has indeed met the state's substantive standards of its siting act. Specifically, this means that the BPA must disclose the information required in Chapter 463-42 WAC of the Washington Siting Act. For example, the BPA must submit a description of the proposed construction, WAC 463-42-210, and an indication of the federal, state and industry criteria used in the transmission route selection process, WAC 463-42-250.'
>
> "Columbia Basin, 643 F.2d at 605. There seems little doubt that BPA must be required to submit certain information to the State of Montana so that the state may make a decision upon compliance. We have therefore ordered BPA and the other federal agencies to supply the information sought by the plaintiffs pertaining to BPA's compliance with the Montana Major Facility Siting Act. This action will be stayed until the state has had an opportunity to determine whether the state's substantiave [sic] standards, as defined by the Montana Department of Natural Resources and Conservation regulations, have been met." State of Montana v. Johnson, No. 81-26, Memorandum Opinion at 4 (March 4, 1982) (footnote omitted).

b. State of Montana v. Johnson, No. 81-26, Memorandum Opinion (August 13, 1982) (Battin, J.)

The second opinion issued by Judge Battin in this case addresses the distinction between substance and procedure. In rejecting the State of

Montana's position as to what constitutes a substantive standard, Judge Battin reaffirmed the holding in Columbia Basin that Congress did not waive Federal supremacy with regards to State procedures.

> "The State has previously admitted that there is little, if any, distinction between the procedural and substantive characteristics of the Siting Act. Rather, through its methodology, the Board has concluded that the BPA has failed to consider and perform certain tasks which are environmenally necessary and economically feasible. Thus, the Board argues that the minimum adverse enviromental impact can be obtained only after BPA's compliance with these specific deficiencies -- i.e., the Board's conditions contained within its Final Determination are the applicable 'substantive standards' in this case. We find such an inherently subjective process a distortion of the Congressional intent in § 505 of the Federal Land Policy Land Management Act [sic], 43 U.S. § 1765. If accepted, the State's substantive standard argument is tantamount to requiring implementaton of the entire certification procedure omitting only the actual issuance of a certificate of environmental compatibility. In applying a recent Eighth Circuit case to the facts here, it is apparent that by distorting the procedural-substantive distinctions of the Siting Act, Montana or any other state adopting the statutes involved could require federal agencies to fully comply with all substantive and procedural aspects of its laws whenever Congress has determined that certain agencies are subject to state substantive standards. See Citizens and Landowners Against The Miles City/New Underwood Powerline, et al. v. Secretary, United States Department of Energy, et al., No. 81-1544 (8th Cir., July 16, 1982). The Court believes that FLPMA is not a carte blanche delegation of discretionary authority to a state agency." State of Montana v. Johnson, No. 81-26, Memorandum Opinion at 3-4 (August 13, 1982) (emphasis supplied).

CHRONOLOGY OF BPA MEETINGS IN MONTANA

February 1978-August 1982

Since the inception of the Colstrip Transmission Project planning, BPA has endeavored to be open, frank, and accessible to all parties concerned with the planning process. Nevertheless, we have received substantial criticism alleging that BPA has been negligent in communicating its activities and has been unresponsive to the concerns of Montana citizens.

During the early phases of the project planning, BPA's public involvement effort may have fallen short of that level desired by its critics. If so, it was an inadvertent weakness, not an intentional one. More importantly, any laxness in this regard has, I am wholeheartedly convinced, been more than balanced by our intensified community relations effort in recent years. Not only have we complied with and in most cases exceeded the administrative requirements for public involvement in our planning, but we have willingly responded to numerous invitations to meet with concerned groups and individuals. Members of our headquarters staff have participated in many of these discussions and BPA personnel in our Missoula and Kalispell offices have made themselves available virtually around the clock and 7 days a week to respond to inquiries and complaints.

As evidence of our good-faith efforts in this regard, we have compiled a chronology list of all of the Montana public hearings, groups discussions, and public meetings over the past 4-1/2 years. Since February 1978, BPA has sponsored or participated in a total of 149 such meetings held in 27 different communities throughout Montana. The preponderance of these meetings were, understandably, held in western Montana.

I have with me a chronology listing of these meetings and will be pleased to enter it for the record if so desired. I believe that it attests more eloquently than I can to the BPA commitment to an open outreach process and unflagging efforts to satisfy public concerns.

In addition to this record of formal and informal public meetings, our staff in western Montana have recorded in excess of 700 personal, mail, or telephone contacts with landowners and other concerned Montanans over the past 3-1/2 years. Unrecorded contacts probably boost this number to well over 1,000.

Dan W. Schausten
8/19/82

Doc. #AE-1739K

MEETINGS WITH MONTANA GOVERNMENT BODIES
ASSOCIATIONS, AND THE GENERAL PUBLIC

Concerning the Colstrip Transmission Project
1978-1982

Date	City	Entities Involved or Nature of Meeting
2-22-78	Helena	Montana Department of Health and Environmental Sciences
3-20-78	Pablo	Confederated Salish & Kootenai Tribal Council
9-19-79	Missoula	Public Scoping Meeting
11-07-79	Missoula	Data collection meeting with local agencies
11-08-79	Missoula	Data collection meeting with local agencies
12-04-79	Superior	Mineral County Officials
12-05-79	Thompson Falls	Sanders County Officials
12-??-79	Thompson Falls	Meeting with land-use planning, local government officials
12-07-79	Missoula	Missoula Planning Board
12-20-79	Helena	Lieutenant Governor and State Legislators
1-16-80	Pablo	Confederated Salish & Kootenai Tribal Council

Date	City	Entities Involved or Nature of Meeting
1-18-80	Pablo	Confederated Salish & Kootenai Tribal Council
1-31-80	Boulder	North Boulder Protective Association
2-07-80	Deer Lodge	BPA Public Workshop
2-08-80	Townsend	BPA Public Workshop
2-09-80	Boulder	BPA Public Workshop
2-11-80	Helena	Senator Baucus, North Boulder Protective Association, and State Representatives
2-28-80	Helena	Governor and Staff
3-05-80	Boulder	North Boulder Protective Association
3-06-80	Drummond	Messrs. George and Rick Lacey (Later formed the Upper Clark Fork Protective Association)
3-20-80	Noxon	BPA Public Workshop
3-24-80	Thompson Falls	BPA Public Workshop
3-25-80	Missoula	BPA Public Workshop
3-26-80	Superior	BPA Public Workshop
3-27-80	St. Ignatius	BPA Public Workshop
5-01-80	Missoula	Lincolnwood Homewoners Association
5-03-80	Drummond	Senator Baucus, Congressman Williams, Clark Fork Basin Protective Association, Deer Lodge Valley Resource Association, and North Boulder Protective Association
5-13-80	Boulder	Jefferson County Planning Commission
5-14-80	Boulder	North Boulder Protective Association
5-16-80	Deer Lodge	Deer Lodge Valley Resource Association and Western Environmental Trades Association
6-04-80	Milltown	Hellgate Pines Homeowners Association
6-06-80	Helena	Representatives of Senator Melcher
6-16-80	Deer Lodge	Deer Lodge Valley Resource Association
6-18-80	Boulder	North Boulder Protective Association
6-27-80	Helena	Western Environmental Trades Association
7-11-80	Missoula	Secretary of Clark Fork Basin Protective Association
7-16-80	Helena	Montana Department of Natural Resources and Conservation and State Representatives
7-18-80	Deer Lodge	Senator Melcher and Deer Lodge Valley Resource Association
8-05-80	Townsend	BPA/Forest Service Public Meeting

Date	City	Entities Involved or Nature of Meeting
8-06-80	Deer Lodge	Engineers for Powell Board of County Commissioners
8-14-80	Missoula	Public Meeting Sponsored by Missoula Board of County Commissioner
8-26-80	Milltown	Hellgate Pines Homeowners Association
10-06-80	Missoula	Lincolnwood Homeowners Association
10-15-80	Butte	Senator Melcher and Forest Service/Bureau of Land Management Representatives
11-19-80	Deer Lodge	Senator Melcher and Deer Lodge Valley Protective Association
12-27-80	Drummond	Senator Baucus' Staff and Upper Clark Fork Protective Association
1-06-81	Drummond	Upper Clark Fork Protective Association
1-07-81	Helena	Montana Department of Natural Resources and Conservation
1-08-81	Helena	Senator Baucus' Staff and Montana State Officials
1-21-81	Missoula	Board of Missoula County Commissioners
2-05-81	Missoula	Board of Missoula County Commissioners
2-09-81	Helena	Lieutenant Governor and Staff
2-17-81	Kalispell	Flathead Valley Community Meeting
2-18-81	Drummond	Upper Clark Fork Protective Association
2-18-81	Helena	Montana Department of Natural Resources and Conservation
2-19-81	Helena	Montana Congressional Delegation
2-19-81	Butte	Silver Bow County Commission Chairman
2-19-81	Boulder	North Boulder Protective Association
2-23-81	Deer Lodge	Deer Lodge Valley Resource Association
2-23-81	Philipsburg	Granite County Board of Commissioners
2-26-81	Anaconda	Anaconda/Deer Lodge City and County Officials
2-27-81	Deer Lodge	Deer Lodge Valley Resource Association
2-27-81	Drummond	Upper Clark Fork Protective Association
3-20-81	Missoula	Missoula County District Attorney and Missoula County Commissioner Conrad
3-24-81	Deer Lodge	BPA Public Meeting
3-25-81	Boulder	BPA Public Meeting
3-26-81	Helena	Officials of the Montana Department of Natural Resources and Conservation

Date	City	Entities Involved or Nature of Meeting
4-21-81	Drummond	Upper Clark Fork Valley Protective Association and Drummond Area Landowners Group
4-22-81	Missoula	Upper Clark Fork Valley Protective Association and Senator Baucus
4-23-81	Missoula	Upper Clark Fork Valley Protective Association, Lincolnwood Homeowners Association, and Touchette homeowners
4-23-81	Missoula	Senator Baucus in Missoula Town Hall meetings
5-06-81	Missoula	Missoula County Commissioners and Marjorie Harper of the Clark Fork Valley Protective Association
5-18-81	Missoula	Meeting with publishers of newspapers in Missoula, Philipsburg, Anaconda, and Deer Lodge
5-18-81	Drummond	Garrison-Spokane scoping meeting
5-19-81	Clinton	Garrison-Spokane scoping meeting
5-20-81	Potomac	Garrison-Spokane scoping meeting
5-21-81	Lolo	Garrison-Spokane scoping meeting
5-27-81	Frenchtown	Garrison-Spokane scoping meeting
5-28-81	Missoula	Garrison-Spokane scoping meeting
6-02-81	Gold Creek	Meeting with residents to discuss the Garrison Substation location
6-04-81	Superior	Mineral County Commissioners
6-05-81	Polsen	Lake County Commissioners
6-09-81	Thompsen Falls	Sanders County Commissioners
6-10-81	Missoula	Residents of Rattlesnake area
6-18-81	Noxon	BPA open house
6-22-81	St. Ignatius	BPA open house
6-23-81	Superior	BPA open house
6-24-81	Thompson Falls	BPA open house
6-25-81	Plains	BPA open house
6-26-81	Maxville	Friends of the Rattlesnake
7-07-81	Maxville	Residents of the Maxville area
7-09-81	Maxville	Ledbetter ranch owners
7-15-81	Maxville	Toll free number for use by Montana residents put into service at Missoula office
8-26 thru 30-81	Missoula	BPA display at Missoula County Fair
8-31-81	Missoula	Missoula County Commissioners

Date	City	Entities Involved or Nature of Meeting
9-30-81	Missoula	Missoula Rotary Club
9-30-81	Missoula	Law class at University of Montana Law School
10-07-81	St. Regis	St. Regis area residents
10-08-81	Deer Lodge	Powell County Commissioners
10-14-81	Missoula	Missoula County attorney and city-county Air Quality officials
10-19-81	Superior	Mineral County Commissioners
10-28-81	Missoula	Miller Creek area residents
12-29-81	Missoula	Residents of Rattlesnake area, Miller Creek area, and St. Regis
12-29-81	St. Regis	Residents of Rattlesnake area, Miller Creek area, and St. Regis
1-16-82	Ninemile	Resident of the Ninemile area
2-23-82	Drummond	Granite County Commissioners
2-10-82	Missoula	League of Women Voters
2-16-82	Deer Lodge	Community Development Committee made up of Federal agency representatives
3-24-82	Missoula	Miller Creek residents
3-25-82	Hall	Granite County Alliance
4-01-82	Missoula	Public Meeting
4-06-82	Polson	Lake County Commissioners
4-06-82	Thompson Falls	Sanders County Commissioners
4-07-82	Philipsburg	Granite County Commissioners
4-07-82	Missoula	Rodeo Ranchettes residents
4-08-82	Missoula	Missoula County Commissioners
4-08-82	Superior	Mineral County Commissioners
4-15-82	St. Regis	Public Meeting
4-19-82	Missoula	Public Meeting
4-20-82	Drummond	Public Meeting
4-21-82	Lolo	Public Meeting
4-22-82	Philipsburg	Public Meeting
4-26-82	Frenchtown	Public Meeting
4-27-82	Superior	Public Meeting
4-28-82	St. Ignatius	Public Meeting
4-29-82	Plains	Public Meeting

Date	City	Entities Involved or Nature of Meeting
4-30-82	Potomac	Public Meeting
5-03-82	Thompson Falls	Public Meeting
5-05-82	Superior	Mineral County Commissioners
5-24-82	Missoula	Public Meeting
5-25-82	Thompson Falls	Public Meeting
5-25-82	Superior	Public Meeting
5-26-82	Townsend	Public Meeting
5-26-82	Boulder	Public Meeting
5-27-82	Philipsburg	Public Meeting
5-27-82	Deer Lodge	Public Meeting
6-08-82	Missoula	Public Meeting
6-09-82	Missoula	Missoula City/County Planning Staff
6-10-82	Pablo	Confederated Salish and Kootenai Tribal staff
6-16-82	Hall	Granite County Alliance
6-15 thru 16-82	Helena	Montana DNRC staff
6-28-82	Missoula	Public Meeting
6-29-82	Missoula	Congressional Field Staff and Missoula County Officials
7-01-82	Helena	Montana State Elected Officials
7-14 thru 15-82	Helena	Montana DNRC staff
7-19-82	Missoula	Public Meeting
7-19 thru 21-82		Montana DNRC staff fly over route alternatives
8-02-82	Boulder	Boulder City Officials
8-16-82	Deer Lodge	Powell County Commissioners

Staff:sr/kb (WP-AI-0980) 8-24-82

NOTE.--Additional material submitted by Mr. Johnson, because of its voluminous nature, is listed in the appendix.

[Brief recess.]

Senator BAUCUS. In the interest of time, we have slightly rearranged the schedule to accommodate pressing commitments that some of the witnesses have. Our next two witnesses together will be Leo Berry, the Department of State Lands, and Joe McElwain, chief executive officer of the Montana Power Co. Leo, why don't you proceed first and I'd appreciate it if you'd summarize your testimony. I then have a couple of questions for you and then we can turn to Joe and have Joe summarize his testimony and I have a very few questions for him.

STATEMENT OF LEO BERRY, DIRECTOR, DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION, STATE OF MONTANA, HELENA

Mr. BERRY. I may be the only witness here to summarize my comments here today.

Senator BAUCUS. I'll tell you, that's always a problem. Thank you. You don't know how much I appreciate that.

Mr. BERRY. I want to compliment you on your questions regarding some of the State's concerns. It's obvious that you spent a lot of time and you've researched the issues well. We'll try to address the issues number one and three in your letter of invitation to the Governor to testify here today. We have been involved with the proposed Colstrip 3 and 4 transmission line for some time now. As you know, it was originally proposed to the Board of Natural Resources several years ago.

I'm sure Mr. McElwain can comment further on that. It was approved in 1977. Since that time, the department has been intricately involved in the siting and the plans of the transmission line, particularly with the Townsend and Garrison west portion of the line. I've been involved over the past year and a half. During that time relations with Bonneville have been strained at best and trying in many instances, and as a result of our involvement with that portion of the line, I think we've moved forward in terms of how we will handle these types of situations in the future.

The main problem the State has encountered in dealing with this issue is the fact that we were not involved in any real substantive manner in the siting of that transmission line from Townsend west. As you probably know, the Board of Natural Resources originally approved the route submitted by the Montana Power Co., which went up the Blackfoot, across the Jocko and the Flathead Indian Reservation and connected into the Hot Springs substation. During late 1970's there were problems crossing the Flathead Indian Reservation at which time Bonneville agreed to construct a portion of the line. For reasons the State didn't fully understand or hasn't been party to, Bonneville decided to construct the line from Townsend to the Montana border rather than just using their existing corridor across the reservation.

They subsequently chose a route significantly different than what the State had chosen through its siting process, and that was to cut from Townsend to Garrison and from Garrison down the Clark Fork and exit near Taft. Because of the problems we had negotiating with Bonneville as to what role the State was going to play in the siting of that line, the Governor and I and Attorney General Greely in early 1981 decided to file suit to try to get some type of resolution as to what role the State would play in the siting of that line.

We based our suit on the language in FLPMA, Federal Land Policy Management Act, and some Federal court cases and ninth circuit case as you mentioned. We felt that we did have a substantive role to play. A recent court ruling by Judge Battin calls that into question. I think it's an important issue to be considered by you and other Members of Congress as to what role the States will have in the siting of lines by Federal power marketing entities. If the interpretation that the Federal district court has given to FLPMA and the State siting law is correct, then it ought to be changed. I think there ought to be legislation introduced to insure that the State does have a substantive role to play in the siting of transmission lines across its boundaries.

As a result of the problems we ran into on the various sections of the line here, we have been negotiating with Bonneville for the past several months to come up with a way to prevent the type of problems we've had from occurring again. The line was basically sited, easements were acquired, materials were actually purchased prior to any substantive involvement in the Townsend-to-Garrison portion of the line. That places any reviewing entity in pretty much of a box in terms of making any changes or modifications in deciding how or where that line should be constructed.

In addition, early commitments are made concerning siting and construction of the line, any changes by the State likely to cause financial impact. The State is then asked to limit its modifications because of the financial impacts involved in any kind of modification. The proposed memorandum that we have negotiated with Bonneville that I intended to sign today regarding the Siting Act will hopefully prevent some of these problems. It calls for a joint review, a joint study, joint impact statements and hopefully a concurrent and joint decision. However, I think you focused on the substantive or critical issue that remains unresolved, and that is what happens when Bonneville and the State disagree. Bonneville has maintained consistently that the State doesn't have what we would consider a substantive role to play in the siting of the line.

If we happen to agree, everything will be fine. If we don't, the issue remains unresolved. The memo was intentionally silent as to that because the parties have different views on what role the State ought to play. So that issue remains unresolved, although we do think the memo is a giant step forward and I compliment Mr. Johnson for a definite—from the State's perspective—a definite change in attitude in how Bonneville intends to approach the State. We feel there are some positive steps being taken.

As to the specifics of the Colstrip line, the State has approved the Townsend-to-Garrison portion of the line with the exception of the Missouri River crossing and as Mr. Johnson indicated, we are very close to completing our negotiations on that portion of the line. As to Garrison west, Bonneville has agreed to delay the final impact statement on that portion to coincide with completion of the State's review on that, and we intend to have the staff review and our initial report out in early 1983 and a State decision by April of 1983; hopefully they will be consistent and concurrent, but that remains to be seen. You've invited testimony as to our working relationship with other agencies.

As to the issue of transmission lines, we have formed an excellent working relationship with the Forest Service; and the Bureau of Land Management. We have conducted a corridor management study, which we hope will be used as a guideline for the routing of transmission lines across federal lands in the future, and I can only say that that cooperation has been very good to date. We are very pleased with that. The relations with the Western Area Power Administration have also been very good. They've included us in their review procedure to select consultants to set baseline studies, etc.

We're hoping that if we can negotiate a successful agreement with BPA on how these facilities will be handled, that we would use the same approach with the Western Area Power Administration, if BPA's enabling legislation is modified to insure substantive State involvement in the site of transmission lines, basically a partnership concept, that the same language be considered for WAPA's enabling legislation.

There's one final area that I feel must be mentioned and that deals with the Federal Energy Regulatory Commission. The issue arose as a result of a potential hydroelectric project on a State-owned dam at Painted Rocks on the upper Bitterroot River which was constructed several years ago and is owned by the State. The dam has a potential of producing 5 megawatts of power and we've applied for an exemption from the license requirement to install the facility. During the past several years we've been negotiating with local public interest groups and landowners to provide for minimum flows within the Bitterroot River to protect the fisheries.

We've also been negotiating with our Department of Fish, Wildlife and Parks and the Federal Fish and Wildlife Service. Their comments to FERC on our proposed exemption mentioned a figure of 200 cfs to be released from the project, although it did not specifically ask for that to be a requirement of the exemption.

However, despite this lack of a specific request for an instream flow, FERC conditioned our exemption upon the requirement that we not only release 200 cfs from the dam, but that we guarantee delivery of 200 cfs to the Bell Gaging Station farther downstream. I can assure you that neither Governor Schwinden nor I intended to sneak through the night with a flashlight to insure the 200 cfs reaches the Bell Gaging Station by shutting off headgates on the Bitterroot River. What we will do is negotiate in good faith to insure that the fishery concerns are addressed. The issue of the 200 cfs is important because it likely makes the hydropower project on the Painted Rocks Dam impossible, but more important here is the issue of the allocation of water by a Federal agency through its permit decision.

As you know, the issue of water has been subject to great controversy in the West for the past century and it has historically been the position of the State, and I believe the Federal Government, that water allocation decisions would be made by the State rather than the Federal Government. The only exception I'm aware of is Federal reserved rights and Indian water rights. The FERC intrusion into this area has rocked the foundation of western water law and I think it's something that has to be corrected.

I understand the concerns for instream reservation, and in fact Montana has a reservation process that you may have been involved in when you served in the legislature in Montana. We have a reservation process. It has worked. It's been applied to the Yellowstone River where we do guarantee instream flows for fisheries and water quality. That process can be invoked on the Bitterroot or any river in Montana, and I don't feel that Federal agencies through its hydropower permitting decisions ought to be allocating water; that has historically been a State function.

With that I would conclude my comments, Senator, and request that if indeed FERC does have the authority to make water allocations, then perhaps its enabling legislation ought to be modified to make it clear that water allocations decisions are a State function.

Senator BAUCUS. Thank you very much, Leo. I appreciate that last point in particular. I agree that it's much more of a State function than a Federal function. I also appreciate your point that BPA seems to be improving, making a greater effort to listen to and try to accommodate Montana's interests. I frankly have found that to be the case in the last 6 to 8 months, and I hope that trend continues because it would be helpful not only to Montana but also to BPA.

Leo, how much revenue will be lost by the State and its counties because of BPA's decision to construct the Colstrip transmission line?

Mr. BERRY. That's a difficult question to answer with any specifics, Senator. Our analysis that we did on the Garrison west portion that we're doing now estimates, depending on the mill levies of individual school districts and so forth that it is somewhere between $4 million and $7 million a year.

Senator BAUCUS. That's Garrison west?

Mr. BERRY. That's Garrison west.

Senator BAUCUS. What's the revenue loss from Townsend?

Mr. BERRY. Do we have that? (Speaks to unidentified associate.) OK, that's Townsend west.

Senator BAUCUS. That's Townsend west?

Mr. BERRY. That's Townsend west.

Senator BAUCUS. About $4 million, you say?

Mr. BERRY. Four million to seven million.

Senator BAUCUS. And that would be annually?

Mr. BERRY. That would be annually.

Senator BAUCUS. How much has the State been compelled to expend on BPA's lawsuit; any idea?

Mr. BERRY. I would say in the range of $50,000.

Senator BAUCUS. In your opinion, would it damage BPA and the ratepayers of the region and the utilities involved if BPA complied with the Montana Siting Act?

Mr. BERRY. I don't believe so, Senator. I think if we could turn back the clock of time and have the same type of relationship that hopefully we're fostering through the memorandum of understanding that it would not delay the project and it would not cost the taxpayers—or the ratepayers any significant amount of money.

Senator BAUCUS. Would the State have to repeat the entire siting review process if the BPA proposal had been subjected to Montana law?

Mr. BERRY. No.

Senator BAUCUS. When Colstrip 3 and 4 were reviewed by the State, the Department of Natural Resources concluded that the plants were not needed, although the Board disagreed by a 4-to-3 vote. Given the region's current and foreseeable surplus of power, do you see a clear need for those plants and the 500 kV line from Townsend to Spokane?

Mr. BERRY. Well, that's an issue that we haven't examined extensively, Senator. It's my understanding and perhaps Bonneville or Mr. McElwain can answer it better, that a certain amount of BPA forecasts involve the planned construction of the plants 3 and 4. What the lack of 3 and 4 would do to their load forecasts and their ability to supply power, I couldn't say.

Senator BAUCUS. Could you provide a more detailed statement of the need for power?

Mr. BERRY. We certainly will to the extent we can, Senator. We did not review it because the line had—not this specific route, but the line had been authorized by Congress and so we felt we had been preempted on that issue.

Senator BAUCUS. BPA pressed Judge Battin to speed up Montana's decision on the Colstrip line. In your view, had the agency submitted all materials requested by the State of Montana?

Mr. BERRY. Yes, I believe that we had made a determination at that point that all the information had been submitted. We had not had the sufficient time to review it and complete our analysis.

Senator BAUCUS. Did that request to speed up cause any other problems for the State?

Mr. BERRY. Well, it shortened the process and our ability to evaluate the project somewhat, Senator.

Senator BAUCUS. I'm sorry, what?

Mr. BERRY. It shortened the time that we had to review the information; therefore——

Senator BAUCUS. To that State's detriment?

Mr. BERRY. It's hard to say how much. I believe to some, but it's hard to say.

Senator BAUCUS. In your opinion, why do you think BPA decided to build the Colstrip transmission line west of Townsend?

Mr. BERRY. It's my understanding that it related to the inability to cross the Flathead Indian Reservation and the negotiations broke down. Bonneville does have a corridor across the Flathead, which we assumed was going to be used. Why they extended their portion outside the Flathead, down to Townsend, I honestly cannot answer.

Senator BAUCUS. Do you think that Federal law should be amended to more specifically require BPA to abide by Montana Siting—decisions of Montana Siting Statutes?

Mr. BERRY. I believe that it ought to, Senator. I think that perhaps Congress has taken some action in that regard in its language in FLPMA. However, some of the courts are not interpreting that language as I believe Congress intended and perhaps Congress ought to clarify that.

Senator BAUCUS. Do you have any specific language, suggested language for any Federal statutes?

Mr. BERRY. I don't right now, Senator, but I'd be glad to work with you and your office on that.

Senator BAUCUS. I'd appreciate that if you could, please. I note that BPA did not participate in your corridor management study. Do you know the reason for that?

Mr. BERRY. I don't think it was any lack of desire on their part. It mainly dealt with the land management agencies that would be involved in the process. They are the ones who have to grant easements and make the final decision on the siting of the line so we involved them. BPA was collaterally involved, but not directly involved.

Senator **Baucus**. OK, I appreciate your testimony very much.

Mr. **Berry**. Thank you, Senator.

[The prepared statement and submissions of Mr. Berry follow:]

PREPARED STATEMENT OF LEO BERRY

Governor Schwinden asked that I express his thanks to Senator Baucus for the opportunity to present testimony here on behalf of the State of Montana. He regrets that scheduling conflicts prevented him from testifying in person. My testimony will relate to issues 1 and 3 in the letter of invitation sent to the Governor.

Since assuming my present position in January 1981, I've been actively involved with the various projects proposed in Montana by the Bonneville Power Administration (BPA). At times our relations have been trying but I believe progress is being made to improve the relationship between the state and BPA. Our major concern with the relationship to date has been the lack of substantive involvement in BPA's decision-making process in the siting of transmission lines across Montana. Although there are several projects pending, most of our discussions regarding the issue have centered on the Colstrip transmission facility to be constructed by Bonneville west of Townsend. Therefore most of our opinions and concerns relate to experiences regarding the siting of that line. As Senator Baucus knows, the transmission facilities for Colstrip 3 and 4 were originally proposed to be constructed by the private utilities involved in the development. In approving the construction of those units the state also approved a corridor through which the power was to be transmitted. It was the corridor proposed by the private utilities. That corridor proceeded west from Townsend up the Blackfoot Valley, through the Jocko area, across the Flathead Indian Reservation and connected into the Hot Springs substation. The utilities apparently had difficulty acquiring access across the Reservation. For some unknown reason BPA subsequently agreed to construct the portion of the line from Townsend to the Montana border. The issue focused when BPA selected a route from Townsend west different than that already approved by the state. The state had little or no substantive involvement in that decision. Because negotiations regarding the project between the state and BPA were seemingly unproductive, the Governor, the Attorney General, and I decided in early 1981 to file suit seeking a determination that the state did have a substantive role to play in siting of federal transmission lines. There is language in the Federal Land Management Policy Act (FLMPA) and recent federal appeal court decisions which indicate that a state does indeed have a substantive role to play. However, a recent Federal District Court decision has ruled that the state siting requirements are not substantive in FLMPA's terms. If I read that decision correctly, the result is that the people in the state of Montana do not have any assurance that their concerns will be incorporated into the federal decision. If this is a correct interpretation of the present law, then it should be changed.

On a more positive note there has been significant progress made in improving the relations between the state and BPA. Recently I spent two days in Portland negotiating a Memorandum of Understanding (MOU) between my agency and BPA regarding the location and construction of linear construction facilities in Montana. I have attached a copy of the proposed MOU for your review and information. I intend to sign that agreement today. It will lay the ground work for improved state/BPA relations and hopefully will eliminate many of the problems for future lines that were encountered on the siting of the Colstrip lines. It is important to note, however, that the MOU is silent as to how the state's decision will be incorporated into the federal decision. In other workds if BPA and the state disagree as to how or where the line or the segments of the line ought to be constructed, the issue would have to resolved in the courts.

Bonneville has consistently maintained that the state does not have substantive decision-making authority over federal transmission lines. The MOU does nothing to change that position. It would be our recommendation that BPA's enabling legislation be modified to authorize, or perhaps direct, that BPA incorporate the state's siting decisions into its process in a substantive manner. What we would like to see is a partnership arrangement incorporated into the federal statutes. The state recognizes that Congress has the authority to make the "need determination" for federal transmission lines and that is not subject to question by the state. However, when the implementation of those decisions affect the lives of the citizens of the individual states, the state ought to have real and effective involvement in those decisions. It is through state statutes such as Montana's Major Facility Siting Act that the people have expressed their will.

As to the specifics of the Colstrip line the state has approved all but three miles of the Townsend-Garrison segment of the line and we are negotiating on that portion that has not yet been approved. As to Garrison-West we have entered into a contract with Bonneville for a state evaluation of the project with our review being completed in January, 1983 and the state decision by April. I have attached a copy of the agreement concerning that segment of the line for your information. The unfortunate aspect regarding the siting of this line has been the lack of substantive state involvlement in the siting process. In Townsend to Garrison the route had been selected, easements had been required, facilities had been designed and even the tower materials purchased prior to the state's review and decision on the line. The process has not proceeded to that extent on Garrison-west. However, a draft impact statement with an identified preferred route has been issued by BPA. It is my belief that if the MOU works correctly many of our concerns and questions can be addressed in advance of BPA action.

You invited testimony on our working relationship with other federal agencies. As to the issue of siting linear transmission facilities in Montana, the state has formed an excellent working relationship with the US Forest Service and the Bureau of Land Management. We have solidified that relationship through a Corridor Management Study, a copy of which is attached. Relations with the Western Area Power Administration are good, however, BPA's enabling legislation is modified to include the principles of substantive state involvement in the decision-making process, it ought to also be included in WAPA's.

There is one final area of concern that I feel obligated to mention. That is the recent intrusion into the process of allocating water by the Federal Energy Regulatory Commission.

The State of Montana owns the Painted Rock Dam on the upper Bitterroot River in western Montana. The dam has the potential for producing approximately 5 megawatts of power and the state applied for a license to install such a facility. Concurrently, for the past couple of years we have been negotiating with local irrigators and resource groups to ensure an adequate supply of water downstream from Painted Rocks Reservoir. The license issued to the Department for construction of that facility obligated us to not only release 200 cfs but insure that 200 cfs be maintained through the river at a gauging station far downstream from the project.. I can assure you that neither Governor Schwinden nor I intend to patrol through the night with a flashlight, shutting off headgates on the Bitterroot River to ensure that 200 cfs reach Bell crossing. What we will do is sit down and negotiate in good faith, with local parties to resolve the issue. FERC may not be entirely at fault in this issue but they are definitely confused. The 200 cfs figure was originally mentioned in a letter from the State Fish, and Wildlife agency subsequently supported by the Federal Fish, and Wildlife agency. The state letter, although confusing, did not request the 200 cfs requirement and the federal letter was later clarified to be consistant with the state position. FERC chose to incorporate the requirement, anyway. I have enclosed copies of the appropriate exemption and letters involved. The issue of the 200 cfs is important because it likely makes the hydropower project on the dam impossible. But more important here is the issue of the allocation of water by a federal agency. As we know, the issue of water had been subject to great controversy for the past century and it is historically been the position of the state, and I believe the federal government, that with the exception of reserved rights, the allocation of water was to be within the purview of state government authority. The FERC intrusion into this policy has rocked the foundation of western water allocations. Essentially FERC has created a nonconsumptive instream reservation through its permitting process. Montana has a reservation process. We have implemented it on the Yellowstone River in Montana in which sufficient quantities of water were reserved for public entities and instream use for the protection of the fisheries and water quality. That process is currently available in Montana on any river, below any hydropower project, including the Bitterroot River. The key point being that the reservation of water for such purposes is a decision to be made by the state, not by the federal agency through a hydopower permit. We believe that FERC has overstepped its administrative bounds in this instance. We intend to pursue it legally. However, if they have not overstepped their bounds then legislative action is necessary to correct this intrusion on what historically has been a state function.

Enclosures.

AGREEMENT
Between
STATE OF MONTANA
and
BONNEVILLE POWER ADMINISTRATION
UNITED STATES DEPARTMENT OF ENERGY

This agreement executed as of ____________________, 1982, by the United States of America, Department of Energy, Bonneville Power Administration (BPA) acting through the Assistant Administrator for Engineering and Construction, and the State of Montana, acting by and through the Director of the Department of Natural Resources and Conservation (DNRC),

WITNESSETH:

WHEREAS, the State of Montana, acting by and through the Governor, and the Bonneville Power Administration, acting by and through the Administrator, have executed a Memorandum of Understanding on August _____, 1982, expressing the desire to cooperate in the siting of facilities that transmit electric energy, and related activities, and

WHEREAS, this agreement reflects the parties efforts to implement that cooperative objective, and

WHEREAS, DNRC and BPA each have an interest in and a responsibility for insuring that the location, construction, and operation of needed energy conversion projects will provide minimal adverse effects on the environment and upon the citizens of Montana, and said responsibility is defined in part by law,

WHEREAS, pursuant to acts of Congress, BPA is authorized to plan, design, construct, operate, and maintain certain projects for the transmission of power, to develop and implement plans and programs, and to purchase the electrical power from energy projects built by others to meet the electric power needs of the Pacific Northwest including that part of the State of Montana generally west of the Continental Divide,

NOW, THEREFORE, the parties hereto agree as follows:

1. To fully cooperate by jointly studying and evaluating alternative locations for transmission lines hereafter proposed to be constructed and owned by BPA within the State of Montana. Such cooperation encompasses the joint undertaking of activities to achieve compliance with applicable statutes including, but not limited to the National Environmental Policy Act (NEPA), the Pacific Northwest Electric Power Planning and Conservation Act, the Federal Land Policy Management Act (FLPMA); and the Montana Environmental Policy Act (MEPA) and the Montana Major Facility Siting Act (MFSA). The specific activities which the parties agree to perform jointly, the manner of execution, including level of detail, methodology, management and staff interaction, dollar value, and such other items as the parties deem necessary and appropriate shall be negotiated and clearly set forth in work plans and/or subsequent agreements covering individual energy projects. A model plan is attached as Exhibit A, but it is recognized that the process may be modified for a specific project. The activities which the parties hereby agree to undertake jointly may include, but are not limited to, preparation of environmental assessments (EA's) and environmental impact statements (EIS's); oversight advice on the evaluation of baseline conditions of the natural, social, and economic environment; evaluation of potential impacts of individual projects and alternatives, alternatives for mitigation of impacts, alternative route and location studies, alternative technologies, centerline studies, design and engineering, participation with public involvement efforts, monitoring impacts of project construction and operation, and all other activities that are required for Montana to determine compliance with the substantive standards of MFSA.

2. BPA and DNRC will, where appropriate, act as joint lead agencies and secure the cooperation and involvement of other Federal, State, and local government agencies and Indian Tribes with permit authority or jurisdiction

over any aspect of the energy project or having special expertise with respect thereto. In order to accommodate and unify the information needs, EIS, and hearing requirements of all such agencies with permit authority or jurisdiction over any aspect of the project, or having special expertise with respect thereto, BPA and DNRC will consider the requirements and informational needs of such cooperating entities in developing scopes of work, schedules, and funding.

3. For energy projects covered by this Agreement, BPA agrees to compensate DNRC for necessary and reasonable expenses and administrative costs incurred by DNRC for its participation in the specific activities as set forth in Section 1.

4. The parties will meet at the call of either party at mutually agreeable times and places to encourage the exchange of information and solicitation of recommendations. The purpose of the meetings will be to: 1) solicit DNRC's involvement in BPA's long-range plans, policies, and rules for the location, construction, and operation of transmission line projects within the State of Montana and for the purchase of electrical power within the State of Montana; and 2) to discuss the joint planning, evaluating, and monitoring of specific BPA energy projects proposed to be constructed and operated within the State of Montana, as per Section 1.

In order to facilitate timely cooperation, BPA will notify DNRC of new proposed energy projects as soon as it is reasonably anticipated that it will be located in, or impact on, the State of Montana before BPA applies for Congressional authorization for funding of these energy projects.

5. If the provisions for joint study set forth in Section 1 and the cooperation sought by this Agreement do not achieve mutually acceptable conclusions, independent sections of the joint report will be presented by the parties to the Board of Natural Resources and Conservation (BNRC) and the appropriate Federal decisionmakers. In such cases, all appropriate data information, whether collected jointly or independently by any party, shall be available to all involved parties.

6. The BNRC, after receiving recommendations, permits, decisions, opinions, etc., from State and local agencies, with permit authority or jurisdiction over any aspect of this project shall determine compliance with the substantive standards of MFSA. BNRC shall attempt to carry out its legal mandate in conjunction with Federal agencies with authority or jurisdiction over any aspect of this project and will, if possible, issue concurring decisions.

7. The general contract provisions contained in Exhibit B, which is attached hereto and incorporated by reference as a part of this Agreement.

8. This agreement may be modified or amended by written mutual agreement between BPA and DNRC, and terminated by mutual agreement or after 30 days' written notice by either party.

9. This agreement is effective upon execution by both parties and upon execution of the Memorandum of Understanding between the Governor of the State of Montana and the Administrator of the Bonneville Power Administration.

10. Nothing in this Agreement shall be construed to limit, repeal, or in any manner modify the existing legal rights, privileges, and duties of the parties hereto as provided by contract, agreement, statute, or any other law or applicable court decision.

UNITED STATES OF AMERICA
Department of Energy
Bonneville Power Administration

By: Marvin Klinger 8/20/82
Assistant Administrator for Engineering
and Construction
Date

STATE OF MONTANA
Department of Natural Resources and Conservation

By: ______________________ ____________
Director
Date

(WP-EV-0322v)

EXHIBIT A

MODEL PLAN

Federal/State Involvement Process

The following Federal/State involvement process describes, generally, the level of involvement and steps necessary to site BPA transmission lines in BPA's service area in Montana. Because the involvement process is a model, it is recognized that it may be necessary to modify the process on a specific project basis which will be reflected in the work plan

BPA and DNRC co-lead agencies

Work Plan/Subsequent Agreements

Federal/State DRAFT Environmental Impact Statement

Department of Health and Environmental Sciences

Joint BPA/DNRC Hearings

Federal/State Final Environmental Impact Statement

Joint BPA/DNRC Presentation to BNRC

BNRC Actions (Compliance with Montana Major Facility
Siting Act's Substantive Standards and Recommendations)

Federal Record of Decision(s)

BPA Decisions

(WP-AE-1735K)

EXHIBIT B

GENERAL PROVISIONS - INTERGOVERNMENTAL AGREEMENTS

1. OFFICIALS NOT TO BENEFIT (FPR 1-7.102-17)

No member of or delegate of Congress, or resident Commissioner, shall be admitted to any share or part of this agreement, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

2. COVENANT AGAINST CONTINGENT FEES (FPR 1-1.503)

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this agreement without liability or in its discretion to deduct from the price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

3. CONVICT LABOR (FPR 1-12.204)

In connection with the performance of work under this agreement, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1965, (18 U.S.C. 4082(c)(2)) and Executive Order 11755, December 29, 1973.

4. EQUAL OPPORTUNITY

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action will include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended by Executive Order No. 11357 of October 13, 1967, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(WP-AE-1736K)

AGREEMENT
BETWEEN
MONTANA DEPARTMENT OF HEALTH & ENVIRONMENTAL SCIENCES
MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
AND
BONNEVILLE POWER ADMINISTRATION
UNITED STATES DEPARTMENT OF ENERGY

This Agreement, executed as of 17 May, 1982, by the United States of America, Department of Energy, acting by and through the Administrator, Bonneville Power Administration (BPA), the Department of Natural Resources and Conservation of the State of Montana, and the Department of Health and Environmental Sciences of the State of Montana (State Agencies),

WITNESSETH:

WHEREAS, Judge James F. Battin of the United States District Court for the District of Montana, entered an Order on March 4, 1982, in the case of State of Montana, et al. v. Peter Johnson, et al., and

WHEREAS, said Order reads in part as follows:

> "IT IS FURTHER ORDERED that the Bonneville Power Administration must comply with the substantive requirements of the Montana Major Facility Siting Act."

NOW, THEREFORE, the parties hereto agree as follows:

BPA will respond to the Order of Judge Battin and will furnish all information requested by the State Agencies.

The State Agencies have advised BPA that it will determine whether the substantive requirements of Montana's Major Facility Siting Act have been complied with for the segment of the transmission line from Garrison to Montana's western border.

The parties agree that time is of the essence to this Agreement and, because of the time constraints, both parties are making accommodations in their respective schedules. In addition, the State Agencies, unaided, cannot accomplish their determinations consistent with BPA's construction schedule. Delays in the initiation of construction contracts may adversely affect BPA's construction schedule for the Garrison-Spokane segment of the transmission line and the parties hereto wish for that construction to go forward in a timely fashion. In response to the demands imposed upon the State Agencies, BPA will provide necessary financial aid to expedite the State action.

The State Agencies, in making their determinations, will consider whatever factors they consider relevant. The State Agencies intend to consider requirements listed in Montana Codes Annotated Sections 75-20-301 and 75-20-503, and the substantive requirements of Title 75, Chapters 2, 5, and 10, MCA and rules adopted thereunder. The State Agencies will make every effort to confer with BPA and its technical staff to discuss with BPA the corridors, mitigation plan, and other relevant matters.

BPA agrees to reimburse the State Agencies for the actual costs for analyzing the material and making said determination. These costs shall include reasonable staff salaries, administrative costs, travel, printing, photocopying, and Board expenses. The State Agencies shall make all efforts to make such determinations by or within 8-1/2 months from the date of execution.

BPA shall make an initial payment of $25,000 when this Agreement is signed. After the State Agencies review the information, a more detailed work statement budget, payment schedule, and cost-accounting method(s) shall be agreed upon within three (3) weeks following execution of this Agreement with further payment to be made upon receipt of bimonthly progress reports. In any event, however, such costs are not expected to exceed $370,000, $300,000 of which will be allocated to the Department of Natural Resources and Conservation and $70,000 of which will be allocated to the Department of Health and Environmental Sciences.

The parties hereto have been advised of Montana Power Company's position that the inability to timely integrate the output of Colstrip Unit 4 into interconnecting transmission lines between Garrison and Spokane will worsen expected power deficiencies and substantially increase costs for the State of Montana and the Pacific Northwest, all as set forth in a letter from Montana Power Company dated March 10, 1982, marked as Attachment A and by this reference made a part hereof.

This Agreement may be amended at any time by mutual agreement and the parties further agree that it may be terminated by either party upon two (2) weeks written notice, for good cause shown, which causes may include, but are not limited to, a failure of payment or nonpayment by BPA, a failure of performance or nonperformance by either State Agency in such manner as to jeopardize the timely completion of the services by the State, or any other action which makes the completion of the contract impossible or unnecessary.

Nothing in this Agreement shall be construed to limit, repeal, or in any manner modify the existing legal rights, privileges, and obligations of the parties hereto as provided by contract, agreement, cited statutes, or any other law or applicable court decision, and all commitments under this Agreement will be performed consistent with both parties' legal obligations and authorities to comply with State and Federal statutes and regulations.

Done at Helena, Montana, the day and month above set forth.

Director, Department of Natural
Resources and Conservation

John J. Drynan M.D.
Director, Department of Health
and Environmental Sciences

Peter T. Johnson
Administrator
Bonneville Power Administration

MONTANA POWER COMPANY mpc GENERAL OFFICES 40 EAST BROADWAY BUTTE, MONTANA 59701
• TELEPHONE 406/723 5421

ROBERT J. LABRIE
SENIOR VICE PRESIDENT
ENGINEERING AND TECHNOLOGY

March 10, 1982

Mr Marvin Klinger
Assistant Administrator for
Engineering and Construction
Bonneville Power Administration
P O Box 3621
Portland, OR 97208

Dear Marvin:

This letter will present our views regarding the first three items of information requested of BPA by Leo Berry, Director of the Montana Department of Natural Resources and Conservation, in his March 8, 1982 letter to you. While we do not agree that much of the information requested is germaine at this time to the question of compliance by BPA with the "substantive standards" under the Major Facility Siting Act, we nevertheless submit the following:

1. If Colstrip Unit #3 is completed on schedule ready for turbine roll in October 1983, but the 500 kV transmission circuits from Colstrip to Broadview to Townsend to Garrison and the Garrison Substation are not completed by that time, the unit will sit idle until the transmission facilities are completed. Then testing and shakedown can be accomplished with commercial operation to follow about three months later.

   Without the 500 kV transmission facilities in place to and including Garrison Substation, there is no transmission capability available on the underlying system to accommodate Colstrip Unit #3 power. The system is only marginally capable of handling all of Colstrip Units #1 and #2 power because of the delays already suffered by the 500 kV project. That project was planned to enhance the reliability of transmitting #1 and #2 power in addition to handling #3 and #4 requirements.

   The costs of Unit #3 sitting idle awaiting transmission are estimated to consist of two major items:

   A. the difference in fuel cost between oil or gas fuel for replacement energy (if available) and the replaced coal fuel; and

   B. the additional interest cost (or AFUDC) which would accumulate during the delay.

   These costs are estimated at 78.3 mills/kWh of lost production capability and about $10,000,000 per month of additional AFUDC (see Attachment A). These costs, of course, ultimately will be borne by our ratepayers.

   For each month of delay in completing the transmission, these costs will ultimately amount to $30,000,000 (525,000 average kW X 730 hours/month X 78.3 mills/kWh) in replacement power costs plus $10,000,000 additional AFUDC; a total of $40,000,000 per month, based upon full load operation. It is assumed that the value of the surpluses is the fuel savings.

   Ignoring any revenues from surplus sales and evaluating only the cost of replacement power to cover the deficits would result in a total cost of $20.5 million per month.

   Our latest composite tabulation of the projected loads and resources of the five participants in the Colstrip Project indicate surpluses and deficiencies beginning in the operating year 1983-84 as follows. These figures are taken from unpublished data just now being prepared for the annual PNUCC Regional Forecast to be published later this spring. We believe that these average energy figures are accurate, but that the peak figures understate the deficits from those that will be ultimately used, because complete analysis of the reserve requirements has not yet been made.

Figures Are MW	1983-84		1984-85		1985-86		1986-87	
With Critical Water	Peak	Avg	Peak	Avg	Peak	Avg	Peak	Avg
Composite Surplus/ (Deficit) With Colstrip #3 and #4	1,266	23	559	(176)	394	(127)	(6)	(203)
Composite Surplus/ (Deficit) w/o Colstrip #3 and #4	671	(185)	(36)	(579)	(796)	(959)	(1,196)	(1,123)

2. There are no cost-effective management alternatives to completing construction of Colstrip Unit #3 in accordance with the present schedule. To delay the schedule would result in additional AFUDC of approximately $10,000,000 per month plus estimated additional construction management costs of about $5,000,000 per month. In addition, any substantial delay now would expose the Project to potential claims by subcontractors and vendors for their costs of delay and for extended warranties. The extent of such potential claims is undetermined.

3. There are no reasonable, short-term transmission system alternatives available to accommodate any substantial portion of Colstrip Unit #3's 700 MW of generation. The existing system is marginal with only Units #1 and #2 power and cannot accept additional Unit #3 power absent the 500 kV transmission.

There are no paths through Canada and no paths through Wyoming and Idaho which are not already marginal in their ability to transmit their own requirements to the West from base-load coal-fired units in Wyoming and Colorado.

Very truly yours,

Robert J Labrie

RJL/DBG/jd
Enclosure

cc: Leo Berry - DNR&C
WP Schmechel
DB Gregg
JL Peterson
DE Olson

ATTACHMENT A

Estimated Costs of Delay for Colstrip Unit #3

Cost of Energy Purchases - If Available

Estimated cost of natural gas or oil for boiler fuel in 1984 delivered to a gas- or oil-fired plant in the Northwest = $7.12/million Btu.

(This compares with Canadian natural gas delivered to Billings for the Bird Plant in 1981 @ $5.33/mmBtu. The estimate is derived from Data Resources, Inc's forecast of world oil prices and is equivalent to processed oil delivered in 1984 at $42.70/barrel.)

Estimated cost of coal at Colstrip for Units #3 and #4 in 19d4 = $11.37/ton = $0.661/million Btu.

(This compares with a January 1, 1980 contract price of $8.17/ton. Escalation of indexed costs is estimated by Western Energy Company at approximately 80 cents/ton/year for four (4) years to 1984.)

Unit cost of gas- or oil-fired energy = $7.12 X 10^{-6}/Btu X 12,000 Btu/kWh = 85.44 mills/kWh.

Unit saving of coal energy not generated at Colstrip = $0.661 X 10^{-6}/Btu X 10,800 Btu/kWh = 7.14 mills/kWh.

Difference = 85.44 - 7.14 = 78.3 mills/kWh.

Estimated Cost of Colstrip Unit #3

Estimated Cost of Colstrip #3 to 1/1/84 :	$ 534,380,000
Estimated Cost of Common Facilities to 1/1/84 :	285,527,000
Estimated Cost of Colstrip-Townsend Transmission to 1/1/84:	190,374,000
Total Cost for Colstrip #3 to 1/1/84 (Excluding AFUDC) :	$1,010,281,000

Estimated AFUDC Rate in 1984 = 12% = 1% Per Month

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

City of Billings, Montana) Project No. 4635-000

Montana Department of Natural
Resources and Conservation) Project No. 4657-001

Montana Department of Natural
Resources and Conservation) Project No. 4657-002

Bitterroot Conservation District) Project No. 5364-000

ORDER GRANTING EXEMPTION FROM LICENSING OF A SMALL HYDROELECTRIC PROJECT OF 5 MW OR LESS AND DENYING COMPETING APPLICATIONS FOR PRELIMINARY PERMIT

(Issued July 6, 1982)

The Applicant [1] filed an application for exemption from all or part of Part I of the Federal Power Act pursuant to 18 C.F.R. Part 4 SUBPART K (1980) implementing in part Section 408 of the Energy Security Act (Act) of 1980 for a project as described in the attached public notice. [2] [3]

Notice of the application was published in accordance with Section 408 of the Act and the Commission's regulations and comments were requested from interested Federal and State agencies including the U. S. Fish and Wildlife Service and the State Fish and Wildlife Agency. By letter dated May 6, 1982, the Ravalli County Commissioners stated that the minimum flows recommended by the Montana Department of Fish, Wildlife and Parks (FWP) were needed to protect fish and wildlife populations, and to meet the irrigation and recreational needs of the adjacent area. The Commissioners also stated that a total release of 20,000 acre-feet of stored water behind the reservoir was needed between July 15 and October 1. The Bitteroot Conservation District in its comments filed May 10, 1982, stated that while it supported the exemption application, the project should be operated to more fully protect instream flows and resources and that a level of 12,000 acre-feet of storage be released during July through September.

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[1] Montana Department of Natural Resources and Conservation, Project No. 4657-002, filed on February 19, 1982.

[2] Pub. Law 96-294, 94 Stat. 611. Section 408 of the ESA amends inter alia, Sections 405 and 408 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. §§2705 and 2708).

[3] Authority to act on this matter is delegated to the Deputy Director, Office of Electric Power Regulation under §375.308 of the Commission's regulations 45 Fed. Reg. 21216 (1980), as amended by Order No. 112 in Docket No. RM81-5, issued November 21, 1980, (45 Fed. Reg. 79024).

The Applicant in its response to the comments of the agencies states that the U.S. Fish and Wildlife Service and the State of Montana Department of Fish and Game (F&G) have not requested conditions relating to the operation of the project to provide specified minimum instream flows. The Applicant further states that subjecting the exemption to the Columbia River Basin Fish and Wildlife Program should be adequate to protect the agencies' concerns.

In accordance with the decision on Victor Falls, Project No. 5699, City of Bonney Lake, Washington, we are including non-standard Article 8 which concerns compliance with the regional fish and wildlife plan to be completed on November 15, 1982. The exemption also requires the Applicant to comply with the minimum flow of 200 cfs at Bell Crossing recommended by the F&G. F&G specifically recommended this amount. The U.S. Fish and Wildlife Service stated that the exemption should be conditioned to require a minimum flow of 200 cfs in the Bitterroot River at the Bell Crossing during August and September. Accordingly, under Section 408, Article 2 requires the Applicant to comply with the fish agencies requests. With regard to the need for a specified storage release of 12,000 or 20,000 acre-feet, we believe that these requests should not be granted. The minimum flows adopted herein, together with Article 8, should provide adequate measures to protect the interests of the Ravalli County Commissioners and the Bitterroot Conservation District.

Standard Article 2 included in this exemption, requires compliance with any terms and conditions that Federal or State fish and wildlife agencies have determined appropriate to prevent loss of, or damage to, fish and wildlife resources. The terms and conditions referred to in Article 2 are contained in any letters of comment by these agencies which have been forwarded to the Applicant in conjunction with this exemption.

Should the Applicant contest any terms or conditions that were proposed by Federal or State agencies in their letters of comment as being outside the scope of Article 2, the Commission shall determine whether the disputed terms or conditions are outside the scope of Article 2.

Dam Safety

The Painted Rocks Dam is classified as a high hazard dam. A failure of the dam could cause loss of life and appreciable economic loss downstream. Non-standard Article 6, included in this exemption, would require the project to be subject to annual FERC inspections and independent Part 12 inspections, and require the filing of an emergency action plan.

Archeological and Historic Sites

Significant archeological and historic sites could be affected in the vicinity of construction areas and in areas along the river that would be impacted by erosion. An archeological survey would be required to determine the location of significant sites, and the nature of impacts to such sites. Non-standard Article 7, included in this exemption, would ensure the protection of archeological and historic sites.

Competing Applications

The City of Billings, Montana, filed on May 7, 1981, the Montana Department of Natural Resources and Conservation filed on October 6, 1981, and the Bitterroot Conservation District filed on October 23, 1981, applications for preliminary permits for the Painted Rocks Dam Project. Pursuant to Section 4.104(e)(1) of the Commission's regulations, the Commission will favor an application for exemption over an application for preliminary permit for mutually exclusive projects. Therefore, consistent with Section 4.104(e)(1) of the Commission's regulations, this order grants an exemption from licensing for Painted Rocks Dam Project and denies the applications for preliminary permits filed by the City of Billings, the Montana Department of Natural Resources and Conservation, and the Bitterroot Conservation District.

It is ordered that:

(A) The Painted Rocks Dam Project No. 4657-002 as described and designated in Montana Department of Natural Resources and Conservation's application filed on February 19, 1982, is exempted from all of the requirements of Part I of the Federal Power Act, including licensing, subject to the standard articles in §4.106 of the Commission's regulations attached hereto as Form E-2, 18 C.F.R. §4.106 45 Fed. Reg. 76115 (November 18, 1980), and the following Special Articles.

Article 6. This exemption is subject to the following provisions of 18 C.F.R., Part 12:

1) Section 12.4
2) Subpart C
3) Subpart D

Article 7. The Exemptee shall, prior to the commencement of any construction at the project, consult with the Montana State Historic Preservation Officer (SHPO) and the Regional Archeologist of the U.S. Forest Service (USFS) to determine the scope and design of cultural resource survey and mitigation work that should be undertaken in the project impact areas. The Exemptee shall make available funds in a reasonable amount for such work as required. If any previously unrecorded archeological or historical sites are discovered during the course of construction or development of any project works or other facilities at the project, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Exemptee shall consult with the SHPO and the USFS to develop and implement a mitigation plan for the protection of significant archeological or historical resources.

Article 8. The construction, operation, and maintenance of the exempt project may be reviewed by the Commission and subjected to further requirements for consistency with the terms and conditions of the regional fish and wildlife plan developed pursuant to the Pacific Northwest Electric Power Planning and Conservation Act. Inconsistencies between the regional plan and the mandatory conditions under Article 2 will be resolved by the Commission.

(B) The applications for preliminary permits for Project No. 4635-000 filed on May 7, 1981, by City of Billings, for Project No. 4657-001 filed on October 6, 1981, by the Montana Department of Natural Resources and Conservation, and for Project No. 5564-000 filed on October 23, 1981, by the Bitterroot Conservation District, are denied pursuant to Section 4.104(e)(1) of the Commission's regulations.

(C) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. 1.7(d)(1981), as amended, 44 Fed. Reg. 46449 (1981). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this order, except as specifically ordered by the Commission.

Ronald A. Corso

Acting Deputy Director, Office of
Electric Power Regulation

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Montana Department of Natural Resources)
  and Conservation) Project No. 4657-002

NOTICE OF APPLICATION FOR EXEMPTION FOR SMALL HYDROELECTRIC POWER PROJECT UNDER 5 MW CAPACITY

(March 19, 1982)

Take notice that on February 19, 1982, Montana Department of Natural Resources and Conservation (Applicant) filed an application under Section 408 of the Energy Security Act of 1980 (Act) (16 U.S.C. §§2705 and 2708 as amended), for exemption of a proposed hydroelectric project from licensing under Part I of the Federal Power Act. The proposed small hydroelectric project (Project No. 4657) would be located on the West Fork Bitterroot River, near Darby, in Ravalli County, Montana. Correspondence with the Applicant should be directed to: Mr. Norman Barnard, Montana Department of Natural Resources and Conservation, 32 South Ewing, Helena, Montana 59601.

Project Description - The proposed project would consist of: (1) the existing 143-foot high and 800-foot long gravel and rockfill Painted Rocks Dam, owned by the Applicant, and impounding; (2) a 655-acre reservoir; (3) a 580-foot long outlet conduit; (4) a powerhouse, at the toe of the dam, containing two generating units, each rated at 2.5 MW; and (5) a transmission line. The average annual energy generation is estimated to be 15 million kWh.

Purpose of Exemption - An exemption, if issued, gives the Exemptee priority of control, development, and operation of the project under the terms of the exemption from licensing, and protects the Exemptee from permit or license applicants that would seek to take or develop the project.

Agency Comments - The U.S. Fish and Wildlife Service, The National Marine Fisheries Service, and the Montana Department of Fish and Game are requested, for the purposes set forth in Section 408 of the Act, to submit within 60 days from the date of issuance of this notice appropriate terms and conditions to protect any fish and wildlife resources or to otherwise carry out the provisions of the Fish and Wildlife Coordination Act. General comments concerning the project and its resources are requested; however, specific terms and conditions to be included as a condition of exemption must be clearly identified in the agency letter. If an agency does not file terms and conditions within this time period, that agency will be presumed to have none. Other Federal, State, and local agencies are requested to provide any comments they may have in accordance with their duties and responsibilities. No other formal requests for comments will be made. Comments should be confined to substantive issues relevant to the granting of an exemption. If an agency does not file comments within 60 days from the date of issuance of this notice, it will be presumed to have no comments. One copy of an agency's comments must also be sent to the Applicant's representatives.

Competing Application - Any qualified license applicant desiring to file a competing application must submit to the Commission, on or before MAY 6 1982 either the competing license application that proposes to develop at least 7.5 megawatts in that project, or notice of intent to file such a license application. Submission of a timely notice of intent allows an interested person to file the competing license application no later than 120 days from the date that comments, protests, etc. are due. Applications for preliminary permit will not be accepted.

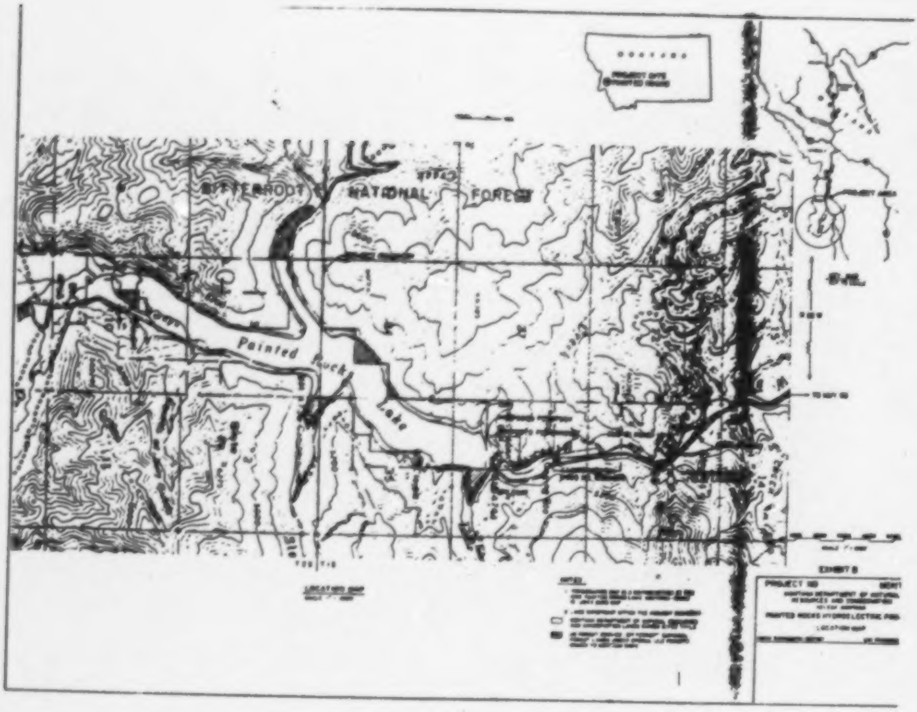
A notice of intent must conform with the requirements of 18 C.F.R. §4.33(b) and (c) (1980). A competing license application must conform with the requirements of 18 C.F.R. §4.33(a) and (d) (1980).

Comments, Protests, or Petitions to Intervene - Anyone may submit comments, a protest, or a petition to intervene in accordance with the requirements of the Rules of Practice and Procedure, 18 C.F.R. §1.8 or §1.10 (1980). In determining the appropriate action to take, the Commission will consider all protests or other comments filed, but only those who file a petition to intervene in accordance with the Commission's Rules may become a party to the proceeding. Any comments, protests, or petitions to intervene must be received on or before MAY 6 1982.

Filing and Service of Responsive Documents - Any filings must bear in all capital letters the title "COMMENTS", "NOTICE OF INTENT TO FILE COMPETING APPLICATION", "COMPETING APPLICATION", "PROTEST", or "PETITION TO INTERVENE", as applicable, and the Project Number of this notice. Any of the above named documents must be filed by providing the original and those copies required by the Commission's regulations to: Kenneth F. Plumb, Secretary, Federal Energy Regulatory Commission, 825 North Capitol Street, N.E., Washington, D.C. 20426. An additional copy must be sent to: Fred F. Springer, Chief, Applications Branch, Division of Hydropower Licensing, Federal Energy Regulatory Commission, Room 208 RB at the above address. A copy of any notice of intent, competing application, or petition to intervene must also be served upon each representative of the Applicant specified in the first paragraph of this notice.

Kenneth F. Plumb
Secretary

DC-A-5


BITTERROOT NATIONAL FOREST
Painted Rocks Lake
EXHIBIT B
PROJECT NO
LOCATION MAP

Attachment
E-2 Form

§ 4.106 Standard terms and conditions of exemption from licensing.

Any exemption from licensing granted under this subpart for a small hydroelectric power project is subject to the following standard terms and conditions:

(a) Article 1. The Commission reserves the right to conduct investigations under sections 4(g), 306, 307, and 311 of the Federal Power Act with respect to any acts, complaints, facts, conditions, practices, or other matters related to the construction, operation, or maintenance of the exempt project. If any term or condition of the exemption is violated, the Commission may revoke the exemption, issue a suitable order under section 4(g) of the Federal Power Act, or take appropriate action for enforcement, forfeiture, or penalties under Part III of the Federal Power Act.

(b) Article 2. The construction, operation, and maintenance of the exempt project must comply with any terms and conditions that any Federal or state fish and wildlife agencies have determined are appropriate to prevent loss of, or damage to, fish or wildlife resources or otherwise to carry out the purposes of the Fish and Wildlife Coordination Act, as specified in Exhibit E of the application for exemption from licensing or in the comments submitted in response to the notice of the exemption application.

(c) Article 3. The Commission may accept a license application by any qualified license applicant and revoke this exemption if actual construction or development of any proposed generating facilities has not begun within 18 months, or been completed within four years, from the date on which this exemption was granted. If an exemption is revoked, the Commission will not accept a subsequent application for exemption within two years of the revocation.

(d) Article 4. This exemption is subject to the navigation servitude of the United States if the project is located on navigable waters of the United States.

(e) Article 5. This exemption does not confer any right to use or occupy any Federal lands that may be necessary for the development or operation of the project. Any right to use or or occupy any Federal lands for those purposes must be obtained from the administering Federal land agencies. The Commission may accept a license application by any qualified license applicant and revoke this exemption, if any necessary right to use or occupy Federal lands for those purposes has not been obtained within one year from the date on which this exemption was granted.

as
ton
es Collins
Washington
Keith Colbo
Montana
Gerald Mueller
Montana

NORTHWEST POWER PLANNING COUNCIL

SUITE 200 • 700 S.W. TAYLOR STREET
PORTLAND, OREGON 97205 • (503) 222-5161

Robert Saxvik
Vice Chairman
Idaho
W. Larry Mills
Idaho
Roy Hemmingway
Oregon
Herbert Schwab
Oregon

April 7, 1982

RECEIVED

Michael Butler, Chairman
Federal Energy Regulatory Commission
825 N. Capitol St., N.E.
Washington, D.C. 20426

Dear Chairman Butler:

On behalf of the members of the Northwest Power Planning Council, I would like to thank you for sending your representative to testify at our recent fish and wildlife program hearing in Boise, Idaho. The presentation by Linda Lee provided a valuable opportunity for the members of the Council to become more familiar with FERC procedures and activities.

Based on our understanding of the FERC's activities and the relationship of its responsibilities to the development of this Council's Columbia River Basin fish and wildlife program, we believe it is important for both groups to work together closely. This is essential to assure that FERC activities are consistent with implementation of Section 4(h) of Public Law 96-501 and that the Council's program can be implemented by the FERC.

In the event that the FERC must act on any hydroelectric project application in the Columbia River Basin prior to November 15, 1982, when the Council expects to adopt its fish and wildlife program, we request the FERC to: 1) Make specific written findings which explain how its order or other action is consistent with the purposes of the Pacific Northwest Electric Power Planning and Conservation Act and other applicable laws to adequately protect, mitigate, and enhance any affected fish and wildlife, including related spawning grounds and habitat, in a manner that provides equitable treatment for such fish and wildlife with other purposes of the action; and, 2) Include the following condition in any license, preliminary permit, license renewal, license amendment, or license exemption:

> This [license, preliminary permit, license exemption, license renewal or license amendment] shall be subject to such modification as is appropriate to assure that it takes into account, to the fullest extent practicable, the Columbia River Basin fish and wildlife program to be adopted by the Northwest Power Planning Council on or about November 15, 1982, pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980, Public Law 96-501.

Once the Council's program is adopted, we similarly expect the FERC to include written findings in each of its Columbia River Basin orders explaining how the order takes the program into account to the fullest extent practicable and providing detailed reasons for any deviation from the program.

We also would appreciate receiving copies of any notices of applications for licenses, preliminary permits, license exemptions, renewals or amendments in the Columbia River Basin, until further notice.

Thank you for your assistance.

Sincerely,

Daniel J Evans

Daniel J. Evans, Chairman

STATE OF MONTANA

DEPARTMENT OF
FISH AND GAME

1420 East Sixth Avenue
Helena, Montana 59620
May 12, 1982

Mr. Kenneth F. Plumb, Secretary
Federal Energy Regulatory Commission
825 North Capitol Street, N.E.
Washington, D.C. 20426

COMMENTS: Painted Rocks Hydroelectric Project
Project No. 4657-002

Dear Mr. Plumb:

We have reviewed the application for exemption from licensing for the Painted Rocks Hydroelectric Project (FERC No. 4657-002) and have the following comments.

Earlier consultation with the applicant stressed the necessity for maintaining the base flow releases as specified in the existing operation policy of Painted Rocks Reservoir. The applicant states, however, that, "The water policy may be altered to accommodate the proposed hydropower facilities or future water purchase contracts."

We are requesting additional information on the extent of alteration of the water policy to accommodate the hydropower facility and reserve the right to specify stipulations on the exemption regarding modification of the water policy.

On April 7, 1982, the Northwest Power Planning Council (NWPPC) sent FERC a letter (copy enclosed) which stressed the importance of close cooperation between the two groups on hydroelectric development in the Columbia River Basin. Section 4(h)(11)(A) of the Pacific Northwest Power Planning and Conservation Act requires that federal agencies which regulate non-federal hydroelectric developments consider the fish and wildlife program adopted by the NWPPC when decisions are made.

The fish and wildlife program will be adopted on or about November 15, 1982. Montana recommendations for the fish and wildlife program include the augmentation of flows in the Bitterroot River through purchase of water from Painted Rocks Reservoir. The purpose of the water purchase is to maintain a minimum instantaneous flow of 200 cfs in the Bitterroot River at Bell Crossing during August and September for fish and wildlife values.

Action taken on the exemption application by FERC should be consistent with that recommendation. In addition, the following stipulation should be included on the exemption for Painted Rocks:

> This license exemption, shall be subject to such modification as is appropriate to assure that it takes into account, to the fullest extent practicable, the Columbia River Basin Fish and Wildlife Program to be adopted by the NWPPC on or about November 15, 1982, pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980, Public Law 96-501.

Sincerely,

Larry G. Peterman

Larry G. Peterman
Water Resources Supervisor
Ecological Services Division

LGP/sk
Enclosure

United States Department of the Interior
OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL PROJECT REVIEW
Room 688, Building 67
Denver Federal Center
Denver, Colorado 80225

RECEIVED
MAY 24 1982
MONT. DEPT. OF NATURAL
RESOURCES & CONSERVATION

IN REPLY
REFER TO:
ER 82/564

MAY 20 1982

Mr. Kenneth F. Plumb
Secretary
Federal Energy Regulatory
Commission
825 North Capitol St., NE
Washington, DC 20426

Dear Mr. Plumb:

We have reviewed the Notice of Application for Exemption for the Painted Rocks Project, FERC No. 4657-002, Ravalli County, Montana, and have the following comments.

General Comments

In Exhibit A, there is a short discussion regarding the proposed operation of the project as it would relate to the Policy on the Painted Rocks Reservoir Water. It is noted that the Policy may be changed to accommodate the proposed hydropower facilities, but there is no discussion of what changes may occur. In Exhibit E, however, under the discussion of impacts on water use (page E-14), it is stated that no change in the operation of the dam and reservoir from the existing Policy on Painted Rocks Reservoir Water is anticipated. This apparent discrepancy should be resolved, and if changes in the Policy are anticipated, they should be discussed in the exemption application.

Fish and Wildlife Resources

Section 2.1.2 of Exhibit E discusses impacts of the proposed project on water quality and quantity. It predicts that complete shut downs in flow at the dam may occur during the construction period for up to 10 hours a day. Such flow reductions could have severe detrimental effects on fishery resources below the dam, but the issue is not addressed in any fashion in Section E.21.4., which outlines impacts to fish and wildlife resources. If reductions in flow are indeed anticipated, then the impacts to fish resources should be addressed.

The Pacific Northwest Electric Power Planning and Conservation Act (PNEPPCA), Section 4.(h)(11)(A), requires that Federal agencies which regulate non-Federal hydroelectric developments consider the fish and wildlife program adopted by the PNEPPC Planning Council in their decisionmaking processes. That program is still in the development state, but the Montana Recommendations for the Fish and Wildlife Program propose that the augmentation of flows in the Bitterroot River be included in the program through purchase of water from Painted Rocks Reservoir. The Montana Department of Fish, Wildlife, and Parks (MDFWP) has recommended, in conjunction with this application, that a minimum instantaneous 200 cfs flow be maintained in the Bitterroot River at Bell Crossing during August and September for fish and wildlife values. We concur with this recommendation. The exemption should be conditioned to include minimum flows of 200 cfs in the Bitterroot River at the Bell Crossing during August and September.

We appreciate the opportunity to provide comments and recommendations on the exemption application.

Sincerely,

/S/ ROBERT STEWART

Robert F. Stewart
Regional Environmental Officer

United States Department of the Interior
OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL PROJECT REVIEW
Room 688, Building 67
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:
ER 82/564

JUN 22 1982

Mr. Kenneth F. Plumb
Secretary
Federal Energy Regulatory
Commission
825 North Capitol St., NE
Washington, DC 20426

Dear Mr. Plumb:

Because of an error in our previous comments, we submit this letter to supercede our previous response dated May 18, 1982, for the Notice of Application for Exemption for the Painted Rocks Project, FERC No. 4657-002, Ravalli County, Montana.

General Comments

In Exhibit A, there is a short discussion regarding the proposed operation of the project as it would relate to the Policy on the Painted Rocks Reservoir Water. It is noted that the Policy may be changed to accommodate the proposed hydropower facilities, but there is no discussion of what changes may occur. In Exhibit E, however, under the discussion of impacts on water use (page E-14), it is stated that no change in the operation of the dam and reservoir from the existing Policy on Painted Rocks Reservoir Water is anticipated. This apparent discrepancy should be resolved, and if changes in the Policy are anticipated, they should be discussed in the exemption application.

Fish and Wildlife Resources

Section 2.1.2 of Exhibit E discusses impacts of the proposed project on water quality and quantity. It predicts that complete shut downs in flow at the dam may occur during the construction period for up to 10 hours a day. Such flow reductions could have severe detrimental effects on fishery resources below the dam, but the issue is not addressed in any fashion in Section E.21.4., which outlines impacts to fish and wildlife resources. If reductions in flow are indeed anticipated, then the impacts to fish resources should be addressed.

The Pacific Northwest Electric Power Planning and Conservation Act (PNEPPCA), Section 4.(h)(11)(A), requires that Federal agencies which regulate non-Federal hydroelectric developments consider the fish and wildlife program adopted by the PNEPPC Planning Council in their decisionmaking processes. That program is still in the development state, but the report of an interagency group established by the Council contains recommendations for the Montana fish and wildlife program which proposes augmentation of flows in the Bitterroot River (a 200 cfs flow has been suggested). This would be accomplished by purchase of water from Painted Rocks Reservoir from existing willing sellers. FERC should consider this recommendation with regard to the Painted Rocks Project in light of its responsibilities under the PNEPPCA and should indicate in any subsequent action taken on this application how it has addressed those responsibilities. In this connection, the FWS stipulates that FERC shall condition the license exemption, if granted, to ensure that the proposed project would be subject to such modifications as may be appropriate to assure that it takes into account, to the fullest extent practicable, the Columbia River Basin fish and wildlife program to be adopted by the Northwest Power Planning Council on or about November 15, 1982, pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980, Public Law 96-501.

We appreciate the opportunity to provide these revised comments and recommendations on the exemption application.

Sincerely,

/S/ ROBERT STEWART

Robert F. Stewart
Regional Environmental Officer

June 24, 1982

Mr. Kenneth F. Plumb, Secretary
Federal Energy Regulatory Commission
825 N. Capitol Street, N.E.
Washington, D.C. 20426

Reference: OEPR-HL
Subject: Montana Department of Natural Resources and Conservation's application for exemption of the Painted Rocks Project No. 4557-002-Montana

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Dear Mr. Plumb:

The Montana Department of Natural Resources and Conservation (MDNRC) has reviewed the letters commenting on the subject application. The letters reviewed are County of Ravalli's letter dated May 6, 1982, Bitterroot Conservation District's letter dated May 6, 1982, State of Montana Department of Fish and Game's letter dated May 12, 1982, U.S. Forest Service's letter dated May 3, 1982, and the U.S. Office of Environmental Project Review's letter dated May 20, 1982. In response to these letters, the MDNRC offers the following comments.

It is MDNRC's understanding that the commenting agencies considered to be federal or state fish and wildlife agencies under FERC regulations are the Montana Department of Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service. It is our further understanding that these two agencies have requested conditioning the exemption subject to the Columbia River Basin Fish and Wildlife Program to be adopted by the Northwest Power Planning Power Council on or about November 15, 1982, and have not requested any other conditions relating to operation of the project to provide specified minimum instream flows. Based on the above understandings, the MDNRC does not oppose the fish and wildlife agency recommendation.

Other comments by the fish and wildlife agencies refer to operations under our Policy on Painted Rocks Water and shut downs at the dam during the construction period. The Policy on Painted Rocks Water includes a specific base flow release schedule, provides for alteration of the operation of the project if hydropower facilities are installed or if future water sales are made. The MDNRC plans to maintain the specified base flow release schedule after installation of the hydroelectric facilities. The MDNRC does not plan to alter the operation of the project if hydropower facilities are installed. An existing contract with the Montana Department of Fish Wildlife and Parks and others for 5000 acre-feet of stored water will be honored as well as existing water rights pursuant to Montana law. The MDNRC is willing to contract for additional water sales; however, the contract price of future water sales beyond an additional 5000 acre-feet will reflect the cost of lost hydroelectric generation due to these sales.

In response to the comment regarding shut downs in flow during construction, the Montana Department of Natural Resources and Conservation will comply with any terms and conditions of the fish and wildlife agencies to insure that significant impacts will be mitigated or will not occur. A twelve inch bypass outlet is available for providing up to 100 cfs for bypass flows. Complete shut downs are anticipated only during installation of the bypass control valve and pipeline. Water may also be released over the spillway.

The County of Ravalli and the Bitterroot Conservation District letters discuss specific releases required from Painted Rocks Reservoir to provide instream flows. These two entities are not, of course, qualified fish and wildlife agencies. This agency has had considerable discussions with both groups and the Montana Department of Fish, Wildlife and Parks regarding downstream releases from Painted Rocks Reservoir. The various suggested release volumes and flow (12,000 acre-feet, 20,000 acre-feet and 200 cfs at Bell Crossing) all relate to Fish, Wildlife and Parks Department recommendations. MDNRC believes that the County of Ravalli and the Bitterroot Conservation District comments will be accomodated by the Northwest Power Planning Council Program. The MDNRC further believes that by complying with the terms and conditions of the fish and wildlife agencies it will also satisfy the recommendations of the County of Ravalli and the Bitterroot Conservation District. Therefore, with this understanding, the Montana Department of Natural Resources and Conservation agrees with the comments submitted by these four entities.

The MDNRC also notes that any condition of the exemption which would establish a specific flow release from Painted Rocks Reservoir would be inconsistent with the states traditional water allocation authority. The MDNRC has been working with the entities commenting on the exemption application and the Northwest Power Planning Council and we believe that by complying with the terms and conditions of the fish and wildlife agencies all concerned interests in this project will be satisfied.

The only additional letter reviewed was submitted by the U.S. Forest Service. The MDNRC recognizes the requirement for revision of the existing Special Use Permit and will intitiate this action upon receipt of the exemption.

MDNRC appreciates the opportunity to respond to the agency comments and will provide any additional information requested. We look forward to your action on the applciation for exemption.

Sincerely,

Gary Fritz
Administrator
Water Resources Division

GF:bjj

cc: Mr. Fred E. Springer
Federal Energy Regulatory Commission
Room 208 RB
825 N. Capital Street N.E.
Washington, D.C. 20426

EXHIBIT 1

UNITED STATES OF AMERICA
FEDERAL ENGERY REGULATORY COMMISSION

Montana Department of Natural Resources
and Conservation) Project No. 4657-002

AFFIDAVIT
(July 30, 1982)

The intent of this affidavit is to clarify the position of the Montana Department of Fish, Wildlife and Parks formerly the Montana Department of Fish and Game regarding stipulations placed on the above referenced project. The Order granting exemption issued July 6, 1982 "requires the Applicant to comply with the minimum flow of 200 cfs at Dell Crossing recommended by the F&G. F&G specifically recommended this amount." It was not, nor is it now the intent of the Department of Fish, Wildlife and Parks to request that this condition be placed on the exemption. A specific release requirement will be determined through the Columbia River Basin Fish and Wildlife Program to be adopted by the Northwest Power Planning Council on or about November 15, 1982. Article 8 of the Order adequately provides for any minimum flow requirements and is the condition specifically requested by the Montana Department of Fish, Wildlife and Parks. No other conditions or stipulations for minimum flows are intended or necessary.

VERIFICATION

STATE OF MONTANA
COUNTY OF LEWIS AND CLARK

James W. Flynn, being duly sworn, deposes and says that he is the Director of the Montana Department of Fish, Wildlife and Parks, and he is authorized to verify and file this document; that he has examined the statements on this page, and that all such statements are true and correct to the best of his knowledge, information and belief, and that he is duly empowered and authorized to subscribe said instrument and to execute this verification on behalf of the Montana Department of Fish, Wildlife and Parks.

James W Flynn
James W. Flynn

Subscribed and sworn to before me, this 28th day of July, 1982.

Nancy M. Kraft
Notary Public for the
State of Montana
Residing at Helena, Montana
My commission expires 2-10-83

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Billings Area Office
Federal Building, Room 3035
316 North 26th Street
Billings, Montana 59101-1396

RECEIVED
[illegible] 1982

IN REPLY REFER TO:
ES

August 3, 1982

Painted Rocks Hydroelectric Project
FERC #4657-002

Mr. Leo Berry, Director
Montana Department of Natural
  Resources and Conservation
32 South Ewing
Helena, MT 59620

Dear Mr. Berry:

This letter relates to the Order granting an Exemption for the Painted Rocks Hydroelectric Project (FERC #4657-002). The Order was issued on July 6, 1982.

Comments provided by the Department of Interior (DOI), dated May 20, 1982, mistakenly included a provision that a 200 cfs minimum flow be maintained at Bell Crossing during August and September, as a stipulation in the Exemption. That letter was subsequently superceded by a clarifying letter dated June 22, 1982, which did not include the 200 cfs minimum flow stipulation. It was never our intent to stipulate a 200 cfs minimum flow in connection with the Exemption, and the June 22, 1982, letter should be considered as the DOI's official comments on the proposed project.

Exhibit E of your Application for Exemption, which provides for maintenance of seasonally adjusted 100 cfs and 125 cfs minimum water releases, as established in the Policy on Painted Rocks Reservoir Water, along with Article 8 of the Order granting Exemption, adequately address our concerns with regard to minimum flow requirements for the project.

We regret any confusion or problems arising from DOI's May 20, 1982 letter.

Sincerely,

John G. Wood

John G. Wood
Field Supervisor
Ecological Services

cc: Regional Director, USFWS, Denver, CO (ENV)
Bob Stewart, OEPR, Denver, CO
Director, Montana Department of Fish, Wildlife, and Parks,
  Helena, MT

Senator BAUCUS. Our next witness is Joe McElwain, chairman of the board and chief executive officer of the Montana Power Co. Joe, I appreciate your coming. I know this takes you out of Butte and so I appreciate your attendance.

Mr. McELWAIN. I'm always happy to come to Helena.

STATEMENT OF JOSEPH A. McELWAIN, BOARD CHAIRMAN AND CHIEF EXECUTIVE OFFICER, MONTANA POWER CO.

Mr. McELWAIN. My name is Joe McElwain, and I would like to submit for the record my prepared statement and summarize it for the record. I think that I agree with Mr. Johnson with respect to the need for these lines to be completed on an orderly schedule that is now very tight, and that there is, and has been, a total justification for the need for project Colstrip 3 and 4. That was determined by the State of Montana and the board of natural resources of the State of Montana in its decision in 1976, and so I believe that we should be looking at how we get this project into the Pacific Northwest grid so that it is capable of furnishing the needs of the people of the Northwest and of the people of the State of Montana.

I think that there has been a very conscious effort on the part of BPA to be open, cooperative, and responsive to the concerns raised by the citizens of the State of Montana on this project. I see two areas where a lot of the present and existing controversy could have been relieved had different actions been taken. The first one goes back to 1974. The Federal Government had the responsibility of making an environmental impact statement on this total project because of its crossing of Federal lands. At the time that they initiated their environmental impact statement, they requested the State of Montana to join in a joint environmental impact study and to make a joint environmental impact statement. The State of Montana at that time declined to take that course of action. Had the joint study been made at that time, I think a good many of the controversies that existed by each of the two agencies going their own way could have been resolved.

The second point that I would make, and one that I have urged upon Bonneville and that we have supported during the proceedings with respect to the enactment of the Pacific Northwest Regional Power Act, is the acceptance by the Bonneville Power Administration of the payment of in-lieu taxes on all future transmission lines that they desire to build under the 1974 act that gives them primary responsibility for grid transmission in the Pacific Northwest. There is some justification for taking that attitude. During the time that the Pacific Northwest bill was being looked at in Congress, the Western Area Power Administration was seeking the same type of funding ability that the 1974 act gave the Bonneville Power Administration, and after discussions with a good many interests and entities, they agreed to include in their legislation a payment of in-lieu taxes based upon what the construction would have paid had it been done by private enterprise, and I think that's an enlightened view on the part of WAPA.

I would hope that the Bonneville Power Administration accepts that in the future. I think a lot of the problems that we're going through in this current situation could be alleviated by adopting that type of view now. Senator Melcher and Congressman Williams, during the process of the Regional Act, attempted to get that type of legislation in the Regional Act, and the legislation, or the amendment, actually came out of the House Interior Committee when it was studied by the Interior Committee with that kind of language in it. It got watered down substantially to a point where it does not have the near meaning that it should have had when the in-lieu taxes situation was in there. Other areas, TVA, the National Parks and Monuments acquisition, all require the payment of in-lieu taxes for Federal acquisitions, and I think it only appropriate that that be included in the WAPA Act and the—should it become legislation, and in the Pacific Northwest Regional Act to more clearly define the association in building this type of facility to the impacts involved in the area.

I believe Mr. Johnson—I did not hear all of his testimony—has probably outlined the sequence of events that caused me, in 1977, to request the then administrator, Mr. Hodel, to take a look at their responsibilities under the 1974 Transmission Act to construct facilities to tie in with us because of our inability to go through the then permitted route that the State of Montana had given us a permit for. I would be happy to respond to any questions that you may have on my part in that. I did play a major role and I think I've played more than a passing role in the whole controversy on Colstrip 3 and 4 over the years and I do have some background on it. On commenting on some of the other things that you have requested I'd like to just make two points.

We have urged upon BPA the fact that the definition of the Pacific Northwest in their act in the Regional Act includes the rural and domestic customers in the 75-mile area, airline miles area circumventing the Continental Divide. That area by definition for certain preference customers is included in the definition. Now I view the intent of the act and of the original Bonneville Act to try to minimize the difference between domestic and rural power costs in the Northwest regardless of supplier. I believe Bonneville could do itself a good service in its relationship with the State of Montana if they would revisit the issue of whether or not that 75-mile area should not be included in determining the exchange number of kilowatts that are involved in the so-called exchange contract.

Currently, in 1982, their present definition makes about 48 megawatts of exchange available to Montana Power Co.'s rural and domestic customers. Had they included that 75-mile area that is in the definition of the Pacific Northwest, there would have been 114 megawatts of power available in exchange. When that total phase in of the exchange program is made, there will be 70 megawatts available by just the Continental Divide determination and 162 megawatts if they included the 75-mile corridor difference. This has a substantial difference in the costs of power that will be available to Montana Power Co. rural and domestic customers ranging in the amount of about $12 million annually, and I think that it is an interpretation that should be made and one that I would like to see the Senator—I have written him about it—give his personal attention to again.

The second point with respect to our relationships with the Bonneville Power Administration has been a controversy over the interpretation of the Hungry Horse and Libby allocation of power for the

State of Montana. There is a long legislative history that in my opinion, and I have attached a brief on the subject matter, in my opinion makes it clear that Congress when they passed both the Hungry Horse and Libby projects intended that there be a reservation and allocation to the State of Montana somewhere around 450 to 500 megawatts of power which could not be taken out of the State of Montana to serve preference customers in other States, but could only be taken away from nonpreference customers in Montana to serve the needs of those qualified preference customers in the State of Montana. It is important to note that that is a very important principle that should be revised by you and the Congress because I also believe that preference envisioned that the cost of that power to users in the State of Montana would be under the hydro-based rate or the so-called 7-B rate, which is available to preference customers in other States.

I think these issues are major ones that should be resolved in an effort to better set up the relationship with the Bonneville Administration, which, as I indicated, I think is doing a conscientious job, and the State of Montana and would go a long way to alleviate some of the continuing problems that are occurring now. Thank you for the opportunity to comment.

Senator BAUCUS. Thank you, Joe, very much. I appreciate your position that BPA should participate in the payment in lieu of taxes program. That means a lot to us in Montana, and I very much agree with your position and I compliment you on it. Second, I want to thank you for drawing our attention to your reading of the statute which required roughly a 450 to 500 megawatt reservations of power at Libby and Hungry Horse systems for Montana. I'm glad you raised that point and it's a point I'm going to pursue and I want to work with you on it.

Mr. MCELWAIN. I want to make it clear that there is that amount of power coming back into the Montana Power—or into the State of Montana now, but there is going to come a time when I think that allocation is going to be very important to the State of Montana as the power needs——

Senator BAUCUS. Outside of Montana——

Mr. MCELWAIN [continuing]. Of Bonneville's system become allocated and I think the people of Montana should by reason of the fact that these two dams do produce, my recollection is about four times as much power downstream by reason of the impoundment of water as they generate at the facility themselves and it was for that reason that the recognition was given in the Hungry Horse Act to an allocation of power to the State of Montana.

Senator BAUCUS. Why did the Montana Power Co. decide not to construct the transmission line from Townsend west? You said you'd be in a position to answer that question. We don't want to take all day on it, but I'm just curious.

Mr. MCELWAIN. We were totally frustrated because we could not get across the Flathead Indian Reservation, and we had a State corridor that we had to build and construct that line if we tried to go around the reservation some way. We would have had to start the whole permitting process over again and open up the whole ball of wax of the controversy of our receiving authorization by the State to go ahead with this project, and that was something after 7 years of frustration in getting a permit that I just did not want to go through, and so we looked for alternatives and this alternative was one that I felt was within the purview of the 1974 act.

We do not have the right to go through the Indian reservation if they don't want us to. We do not have the right of condemnation through an Indian Reservation as we do through other lands. Bonneville did have some capability, I believe, of acquiring right of way through that Reservation that was not open to us and they also had some right of way through the Reservation at the present time. It was just a matter of keeping these on schedule and not going to page one over these very much needed plants unless we took this course.

Senator BAUCUS. How much of the decision was determined by your problems with or reactions to the Montana Siting Act?

Mr. McELWAIN. How much did that involve the——

Senator BAUCUS. That's correct; yes.

Mr. McELWAIN. Well, it involved a great deal the need for us to find some other routing because we just did not want to open up the whole process of permitting this project again; I think that that would have extended another 3 or 4 years a final decision on this—that I did not want.

Senator BAUCUS. Just for my information, though, I understand and agree the permitting process in the past has taken way too great a period of time. In your view, has the State tightened up its negotiations with private industry in the permitting time so that it's more reasonable now or is that still as much a problem as it was?

Mr. McELWAIN. Well, I guess it isn't all a State problem, Senator. It's a problem of the processes that involve appeals and involve various agencies. It involves decisions that the Federal Government has to make in its whole process that certainly needs to be reviewed so that when there is an economic decision made of a need that there ought to be a period of time of 2 or 3 years when we can go ahead with that. The idea of making an economic decision in 1972 and not being able to start that project until 1979 is just not the way to do business——

Senator BAUCUS. I'll agree and——

Mr. McELWAIN [continuing]. And I submit to you that the State of Montana is going to find itself in a very tough position in getting any industry in Montana under circumstances that require 7 years to make a decision.

Senator BAUCUS. I agree 7 years is too long, it's way too long, and I agree something like a 2-year timeframe makes much more sense and is probably necessary, but I'm just wondering whether in your view the permitting process is shorter now, is more streamlined, is more reasonable?

Mr. McELWAIN. I guess the jury is still out on that for the most part. We found that the certification of the Clyde Park-Dillion line went along pretty smoothly so far as the State was concerned, but again you've got yourself involved in the processes that we've built into our system which can frustrate these projects for years and years.

Senator BAUCUS. Did the Power Company's decision to go with BPA have anything to do with the taxes that Montana Power would have to pay, payment in lieu of taxes program; was that a factor?

Mr. McELWAIN. Well, information—maybe you'd better—I got some outside noise. Maybe you'd better——

Senator BAUCUS. I'm sorry. Did the requirement that Montana Power make payments in lieu of taxes have anything to do with the decision ultimately of the power company to have BPA build the line?

Mr. MCELWAIN. No. We were willing and wanted to construct the line. It was the frustration of the two parts involving going through the permitting process again and the fact that we could not get through the reservation.

Senator BAUCUS. In your judgment, do we need to amend the law to require BPA to make payments in lieu of taxes, or does BPA presently have sufficient authority to do so?

Mr. MCELWAIN. I do not have an opinion on their present authority. We did furnish testimony and furnish comments on their impact and the resolutions that they brought out hoping that they would liberalize their interpretation. I guess I'd have to say that in supporting the in lieu of taxes amendment of Congressman Williams that we probably came to the conclusion that they do not now have that authority, but that's merely a layman's opinion.

Senator BAUCUS. How much would it cost a typical Montana Power Co. consumer if those payments were required?

Mr. MCELWAIN. Well, in the overall, I have no idea, but in the overall picture of the Bonneville system, I think that the payment of these taxes, in lieu of taxes would be minimal. After all, the customers of all the private-owned suppliers of power pay the taxes that are involved in our payment in one way or another in their rates, and so I don't think it would make much of an impact. I might say that my recollection is that our last analysis of the amount of taxes involved in this, and it may be because of different routing, came to about $3 million a year under the then millage levies that were involved in our route.

Senator BAUCUS. How has BPA responded to your proposal to expand impact aid? You have suggested in your proposal that they make payments in lieu of taxes.

Mr. MCELWAIN. I attended a hearing with the State land board in which Mr. Gjelde indicated that they would certainly take a look at a broader view. I don't believe that they have come out, to my knowledge, with their final regulations on that matter yet, but I may be behind the times. I believe they are closely looking at taking a broader view of that.

Senator BAUCUS. Have you ever had a chance to review or discuss the BPA's draft budget before it's submitted to Congress?

Mr. MCELWAIN. I have not only except to the extent that it involved the tie-in with the Colstrip transmission. I have discussed that with them at a meeting after I had written my letter to Mr. Hodel, at a meeting in Portland, and I kept very close tabs on that project during the time that it was being—going through the appropriation process in the Congress.

Senator BAUCUS. So it was only at that time?

Mr. MCELWAIN. That's the only time that I have discussed their budget.

Senator BAUCUS. So the Power Co. doesn't either as a matter of course or on an ad hoc basis look at the budget?

Mr. MCELWAIN. We do, when they publicly announce, and if it involves some expenditure of money for transmission for a line that we don't believe they should be involved in, you can be assured that we will be rapping on your door asking you to see that that is not authorized in the appropriation process.

Senator **Baucus**. Would you or the power company like to see its budget before it's submitted to Congress?

Mr. **McElwain**. I think the process is totally adequate. As I understand the process now, when they, particularly in the field of transmission, when they propose out of this revenue, 1974 act, propose a line it is publicly noticed and hearings are had on it in the Congress, and it's only after the Congress has authorized it that they can go ahead with it, so I—no, I feel there are ample opportunities for you to object to what they're doing, particularly in the area of their responsibilities under that 1974 act.

Senator **Baucus**. Any other points you want to make?

Mr. **McElwain**. No, sir.

Senator **Baucus**. Thank you very much, Joe. I appreciate your presence here.

Mr. **McElwain**. I would like to correct my statement on page 9, Senator, if I could.

Senator **Baucus**. Sure.

Mr. **McElwain**. At the top of page 9 on the first line where it says "BPA", that should read Bureau of Land Management.

Senator **Baucus**. OK. Actually, I have a couple more questions here. We'll make that correction. Has Montana Power Co. reviewed the various regional power forecasts prepared by BPA, the Pacific Northwest Utilities Conference Committee, Washington State University or the Northwest Conservation Act Coalition?

Mr. **McElwain**. We have generally reviewed them all. I have not personally reviewed them, but we have reviewed them.

Senator **Baucus**. Which forecast is most accurate in the Montana Power's opinion?

Mr. **McElwain**. The only one I can tell you that I think is accurate for the involvement that we have is the one that Montana Power Co. puts out.

Senator **Baucus**. I hope so.

Mr. **McElwain**. And our assessment of load and resources has a growth of about 2.6 percent compared to the overall regional 1.7 that's in the Bonneville Act. I think the other ones are—or in the Bonneville determination. I think the other ones are somewhat higher than Bonneville. I guess I've got to make this comment with respect to forecasting. We are in a depressed situation in the Pacific Northwest at the present time.

Senator **Baucus**. Economic depression.

Mr. **McElwain**. Economically and there is tied to economics the energy availability. If you do not have energy to do what is 98 percent of the work done in this country other than manpower and horsepower, you're not going to have the economic development that I think is so essential to have recovery. I believe we're going down a disaster course, not only in the Pacific Northwest, but in the United States as a whole in assuming that load growths of electricity, which is probably the most accommodating to future growth, is going to be at a recession level for the rest of our time, because we're going to be faced with a situation that if somebody wanted to have some economic development and growth, there isn't going to be the energy to support it. I think we'd better take a long long look at making sure that we have an adequate supply of energy in the Northwest and in this country to support recovery when it comes, and I'm sure it will come.

Senator BAUCUS. You make a good point, and I think it's dangerous to forecast when times are at their most prosperous; that is, it's dangerous to project trends based on those prosperous times just as well as it's dangerous to project trends based upon depressed times. I think you make a very good point. Do you think BPA's estimates are too high or too low, about right?

Mr. MCELWAIN. I personally said I think they're too low.

Senator BAUCUS. You mentioned your projection is about 2.6.

Mr. MCELWAIN. That's for our system, but I've reviewed their projections. I think they, in my judgment, involve a little more conservation, some more conservation than I think we can get, if you're going to use conservation as an economic justification for conservation and not just conservation as an alternative. Second, I think that their projections are low on the capability of growth in the area.

Senator BAUCUS. What's your view of BPA's decision to extend the acquisition of alternative energy sources?

Mr. MCELWAIN. We have a group that works very closely on those matters. I am not personally up to date on what all of their projections are. I do think that they are making some progress in the area. I think it is an area where there may be a tendency on the part of many to think we ought to go for an alternate energy option purely because it's an option without really getting down and looking at the economics of that option. I guess that is something that needs a lot more attenion than it's getting right now. Windmills are great if they make economic sense; but they're no good if they add to your costs of power over what conventional power costs would otherwise be. I think there's a tendency to look at windmills as something that's going to solve all of our problems in the energy field, and that isn't going to happen.

Senator BAUCUS. One final question. To what extent has the Montana Power Co. been damaged by the financial chaos of the WPPSS nuclear plant fiasco?

Mr. MCELWAIN. Well, Montana Power Co. was not a participant in any of the WPPSS projects. We get some power out of the Hanford extension. We have certainly been damaged by the overall attitude of the investment community by reason of the cancellation of those two projects. Other than that, I think that we were fortunate in making the decision we made to rely upon the vast coal resources that we have in the State of Montana for our future power supplies and not nuclear projects.

Senator BAUCUS. Do you have any view on what we could have done, if anything, to avert or prevent that problem; that is, those kinds of cancellations?

Mr. MCELWAIN. Well, I guess hindsight is a great thing, but the importance of keeping projects on schedule, even though you may be a couple, 3 years early in getting them on line, that power is going to be needed. The importance of getting an orderly construction, particularly in light of the inflation we've encountered in the last decade, has made it real tough for projects that take 10 or 12 years when they should take 5 years to construct.

The second point I would make is that I do think the supply system in the past has lacked some good management capabilities that are required if you're going to get into the tremendous business of large powerplants. I think that has been corrected, is being corrected, and I hate to see something like this happen. I am hopeful that some way those people out in the Northwest find some way to salvage the investment they have in those projects as well as to continue on with WPPSS No. 3.

Senator BAUCUS. Thanks, Joe; thank you very much.

[The prepared statement and submissions of Mr. McElwain follow:]

PREPARED STATEMENT OF JOSEPH A. McELWAIN

My name is Joseph A. McElwain, Chairman of the Board and Chief Executive Officer of The Montana Power Company. I wish to thank you, Senator Baucus, for this opportunity to offer testimony before the Senate Judiciary Committee in response to your August 13, 1982 invitation.

Much of my testimony will focus on the growing involvement of the Bonneville Power Administration in the State of Montana that has arisen on account of BPA's construction of a transmission line to complete the inter-tie with Colstrip Units 3 and 4 and the Pacific Northwest Electric Power Planning and Conservation Act passed into law on December 5, 1980.

Overall, we have found that BPA recently has been open, cooperative and responsive to many concerns raised by citizens living in Western Montana and the State of Montana. We wish to commend BPA and urge it to continue these efforts. This is not to say that serious problems no longer remain. That is not the case. BPA and, perhaps, Congress should address the concerns I will today discuss with you.

As you know, BPA is constructing a transmission line in Montana to interconnect the Colstrip 3 and 4 project to BPA's transmission system. A great deal of controversy has developed in Montana regarding the issue of BPA paying "in lieu of" tax payments to local governments. May I say that there is recent and quite extensive legislative history on the issue of payments in lieu of taxes which may be worth reviewing.

About four years ago the Western Area Power Administration (WAPA) developed a legislative proposal to establish a revolving fund. The legislation drafted by WAPA and sent to Congress by the Carter administration provided for payments in lieu of taxes to the counties and cities through which a transmission line might be built after the effective date of the act. WAPA asked for and received support for its legislation from the investor-owned utilities and REA cooperatives, municipalities and other customers it serves. A condition of utility support was that the payment in lieu of taxes remain a part of the bill as it moved through the legislative process. The provision required WAPA to pay an amount equal to that which would have been paid if the lines were privately owned.

Senator Melcher made an effort to have that language applied to BPA in the Pacific Northwest Conservation and Power Act, but met with strenuous objections from Senator Jackson, then chairman of the Energy committee, and a majority of the membership of that committee.

While the Senate was involved in its deliberations, Congressman Pat Williams took the language from the WAPA bill and introduced it as a separate bill in the House to require that BPA pay in lieu of taxes, in an amount equal to what a private entity would pay, for any line on which construction began after enactment. The Montana Power Company endorsed the Williams' bill and supported it before the House Committee on Interior and Insular affairs. That committee included Pat Williams' language in its version of the Pacific Northwest power bill. The BPA went to work on members of the House Energy committee, which also had jurisdiction, and prevailed upon that committee to accept the watered down version that is now in the law.

The only truly effective way to attack the compensation problem is through legislation and I would recommend reintroduction of Congressman Williams' bill and an effort to enact it.

There is ample precedent for such legislation. Congress authorized TVA to make such payments decades ago. Just a few years ago, Congress enacted PL 94-565 which requires the federal government to make payments in lieu of taxes when it acquires lands for national parks and monuments. In a slightly different form the federal government has been paying for more than 30 years, directly to local governments, what is known as impact aid to schools, at first for the children of military who lived on federal installations and later for all federal employees because they were presumed to be transient and not paying into local taxes.

With regard to power lines, the amounts that BPA or WAPA would pay in lieu of taxes for present and proposed lines in Montana is so small a percentage of the total sums involved that it would be no hardship upon the government nor its power customers.

While we believe the type of proposed legislation mentioned above is most appropriate for all concerned, we have nevertheless suggested another alternative to BPA. As the Regional Power Act demands, BPA has proposed a rulemaking that sets out a local government impact aid formula. Under this formula, once a transmission facility is constructed, it is practically impossible for a unit of local government to document direct benefit to BPA of that local government's financial activities. More likely, any impact or cost to local government will arise when the lines are in service. To make a government whole financially under such situation is more theoretical than practical. To avoid constant confrontations between BPA and local units of government, we suggested that the formula be expanded to permit reimbursement not only for direct cost but indirect impacts associated with the presence of the line. In sum, BPA's proposed impact aid payment is too narrow, will cause local governments to become record keepers for BPA and will cause more confrontation with local governments than it will solve.

You have asked how might the Northwest Power Planning Council better be utilized to improve BPA's responsiveness to state concerns. I believe that the Council has all it can do to discharge the functions assigned it by law. Any effort to enlarge its limited role into some kind of regional regulatory body would and should meet with considerable objection.

The Regional Power Act has itself caused problems that peculiarly affect Montana. For example, BPA recently informed us that the "Pacific Northwest", a term defined in the Act, does not include geographic areas located in Montana within a 75 airline mile band east of the Continental Divide which Montana Power serves. The dollar impact this decision could have on the residential, farm and irrigation class of Montana Power's customers only through this and the next three fiscal years will amount to more than $12,000,000. Although the Regional Power Act was intended to reduce rate disparity between residential and irrigation customers of public and investor-owned utilities, it will not so operate for such Montana Power customers. I have attached copies of correspondence that have passed between Peter Johnson and me concerning this issue.

You have asked how BPA could improve its responsiveness to state government concerns. One area where state interests and BPA are seriously at odds involves the allocation of power to the state from Libby dam and downstream plants attributable to Libby. As you know, the authorizing legislation for Hungry Horse dam and BPA administrative interpretation of that law provided the State of Montana a substantial allocation of power generated by this project and at downstream plants attributable to Hungry Horse. This reservation was responsible for the construction of the Anaconda Aluminum plant at Columbia Falls.

The Libby project, following Hungry Horse, was authorized by Congress in the Flood Control Act of 1950. This Act, an omnibus authorization act, did not expressly address the question of what disposition was to be made of the power generated at Libby. Before Libby could be constructed, a treaty with Canada was required because this project would back water up into British Columbia. During consideration of this treaty, Senate floor discussions between Senator Mansfield and the Chairman of the Senate Foreign Relations Committee, Senator

Sparkman, laid the ground work for a reservation of power to Montana resulting from the construction of this project.

The Hungry Horse, as well as other precedent established in the Missouri River basin, was the backdrop for Senator Mansfield's and Metcalf's efforts that would follow the treaty to establish the reservation.

These efforts began during the Kennedy administration when Congress was asked for a special appropriation to begin planning work on the Libby dam. During consideration of this appropriation, Senate debates occurred among several senators including Mansfield, Metcalf and Hayden, the Chairman of the Senate Appropriations Committee to the effect that Montana would have a prior power preference under the same conditions as at Hungry Horse. During other appropriation hearings in other years, Senators Mansfield and Metcalf continuously reminded the Senate that Montana was entitled to a fair share of the power generated at Libby and downstream dams resulting from Libby.

While BPA has never explicitly approved the reservation, it has heeded the words of Congress and continuously provided Montana with a "fair share" of the electricity needed.

The history of this reservation, set out in the attached brief, was submitted to BPA, as is BPA's response. BPA apparently will not recognize this Montana allocation nor that it must be priced at hydro power rates. The consequences of this position, particularly during periods of power shortages, will either be to take power from Montana or cause any power marketed to Montana cooperatives, industries and any company to be much more expensive than should be the case. BPA has jeapordized the magnet Montana believed it had to draw industry and provide a robust economy.

You have asked that I discuss some of the background that lead to BPA's involvement in the transmission line interconnecting the Colstrip 3 and 4 project with the west. As early as 1966 regional demand was anticipated over the next twenty years to exceed the capability of the region's hydroelectric system. Thus, BPA Administrator Luce stated in his annual report that thermal plants would be carrying much of the region's base load electric demand by 1982.

During this period, culminating in 1969, the hydro-thermal power program, was formulated. It constituted a planning document showing how the 20 year projected load growth could be served by building new generation, principally coal-fired thermal facilities.

Planning began during March of 1973 to develop Phase II of the hydro-thermal program. Phase II was then forced on the region on account of BPA by 1976 notifying all BPA customers that power insufficiency was anticipated during 1982 and later years. As a consequence, most investor-owned utilities, not accorded preference under the BPA Act, had power withdrawn under their contracts with BPA; and preference agencies were put on notice that their load growth could not be served on and after 1982. An important part of Phase II was the enactment of the Federal Columbia River Transmission System Act during 1974. This act was intended to permit BPA the use of power revenues to pay not only Federal Columbia River Power System operation and maintenance expenses, but to issue revenue bonds to finance construction of BPA transmission facilities including lines to handle power from non-federal plants.

It is in this context that BPA determined it was in the region's best interests to construct a 500 kV transmission line interconnecting Colstrip 3 & 4 to the region's main transmission grid.

In my opinion, the BPA has been very responsive to state concerns on the Colstrip 3 and 4 project. A synopsis of BPA's involvement will support my opinion.

In 1971, The Montana Power Company agreed with four other investor-owned utilities to submit a proposal to the State of

Montana to construct two 700 megawatt coal-fired generating units at Colstrip, Montana, and two new parallel 500 kV transmission lines from Colstrip to the BPA system near Hot Springs, Montana. Application for these facilities was made to the State in June, 1973. Because the proposed transmission lines would cross federal lands, applications for rights-of-way permits were also filed with the U.S. Forest Service and the U.S. Bureau of Land Management.

In 1974, the State of Montana was asked by [redacted] Bureau of Land Management to prepare a joint environmental impact statement with the federal agencies on the project. The State of Montana declined to participate in this cooperative effort. This action may have been the pivotal decision in the federal-state relationship on the Colstrip project. At the very least, it caused the state and federal agencies to follow unrelated and inefficient schedules in reaching their respective decisions. Since construction could not begin without the state certificate, the Federal EIS process was suspended pending the state's action.

The required Montana permits were obtained in July, 1976. The BPA assumed lead agency status for the Federal Colstrip EIS in November, 1976. The scope of authority emphasized that if there were federal or Indian objections to the State approved transmission corridor, alternatives must be developed.

The State certified route for the 500 kV lines crossed the Flathead Indian Reservation. During the second half of 1976, Montana Power Company on behalf of Colstrip Units #3 and #4 Project utilities resumed negotiations started in 1974 with the Confederated Salish and Kootenai Tribes for a right-of-way easement for the 500 kV lines. The Tribes were informed in July, 1977 that if negotiations were unsuccessful, Bonneville Power Administration would be asked to assume its statutory responsibility to construct the 500 kV lines. The negotiations continued in August, 1977 but the Colstrip Project utilities and the Tribes were unable to reach agreement on the terms of an easement. As a result, Montana Power was in a position of being unable to construct that section of the 500 kV lines necessary to transmit power from Colstrip Units #3 and #4.

Montana Power also recognized the possibility the Federal agencies would designate a different route than the State. This would further prevent Montana Power from completing the lines when required.

For these reasons, Montana Power Company on September 26, 1977, requested BPA to construct the portion of the 500 kV Project necessary to connect BPA's facilities in Western Montana to the State approved route, preferably in the Helena-Ovando area. Montana Power Company would construct two 500 kV lines from Colstrip to the Helena-Ovando area. BPA agreed on December 2, 1977 that, subject to Congressional authorization and compliance with environmental regulations, it would build the western portion of the Colstrip 500 kV transmission project as far east as Townsend. This plan was released to the news media on that date.

As a result of this agreement, although it had already presented its proposed budget for the 1979 fiscal year, BPA informed Congress that it intended to seek authorization of and appropriation for the proposed project and, in a hearing on March 15, 1978, the Administrator of BPA described the proposed project to the Subcommittee on Public Works, House Committee on Appropriations. Shortly thereafter, Congressman Dicks, of Washington, requested that language approving the exenditure of funds for the federal Colstrip project be added to BPA's Fiscal Year 1979 Appropriation Act. Therefore, without BPA's supplementation of its proposed budget, Congress passed H.R. 12928, an Act making appropriations for public works for water and power development and energy research for the 1979 fiscal year and authorizing the expenditure of funds for "the construction of facilities to integrate new generating facilities at Colstrip, Montana, and the BPA grid".

The alternative of construction by BPA was incorporated in the Colstrip Federal Environmental Impact Statement process. The Transmission Environmental Report portion of that process was made available to the public in August 1978. That document indicated the Federal agencies involved in the EIS were considering as two of several alternatives, construction by BPA on existing right-of-way from Hot Springs to Garrison with options from this point to tie with Montana Power at either west of Helena or Townsend. The Draft EIS released during December 1978, which was the subject of five hearings in Montana during February and March 1979, confirmed the BPA construction alternatives.

The Final Federal EIS was published in July, 1979. Aside from being a comprehensive review of the Colstrip plants and transmission facilities, it provided the basis for various federal decisions, including BPA's decision to build a portion of the lines.

Throughout the entire EIS processes, BPA took and is taking all reasonable action to include the public and state and local government in its decisions. As a result, corridor variations have been made and supplemental decisions rendered for the Townsend to Garrison segment. The Garrison west portion of the lines is likewise subject to extensive public participation.

An examination of the record reveals that BPA has been very responsive to most government and public concerns, including those of the affected landowners. In my opinion, a great deal of the consternation against BPA has been caused repeatedly and irresponsibly by the opponents of Colstrip 3 and 4. The BPA has met its obligations to the citizens of Montana and has properly and legally performed its public trust. BPA's recent willingness to cooperate and agree to partnerships with the State, in the face of continued criticism and lawsuits, should be commended.

Construction and completion of the 500 kV transmission lines by BPA as scheduled remains critical. These lines are essential to the operation of Colstrip Units 3 and 4.

I wish to thank you, Senator Baucus, for extending to me this opportunity to discuss these matters. I trust I have addressed the questions you mentioned in your August 13, 1982 letter.

Attachments.

Attachment A--75-Mile Zone Question

MONTANA
POWER
COMPANY
GENERAL OFFICES 40 EAST BROADWAY BUTTE MONTANA 59701

JOSEPH A. McELWAIN
[illegible]
AND
[illegible]

October 14, 1981

Mr. Peter Johnson
Administrator
Bonneville Power Administration
P. O. Box 12999
Portland, OR 97204

Dear Mr. Johnson:

Bonneville Power Administration is considering the meaning of language found in Section 3(14) of the Regional Power Act. How this language is construed will affect the size of the residential load that The Montana Power Company can qualify for the benefits flowing from the purchase and resale provisions of Section 5(c) of the Act. This language concerns the area contiguous to the Continental Divide. It provides that if certain other conditions are met, then "a part of the service area of a rural electric cooperative" that is contiguous to the Continental Divide is part of the Pacific Northwest. Some of your people have expressed an opinion, with which I disagree, that this language defines a cooperative's "service area" precisely by the location of its customers. I believe a cooperative's "service area" defines a geographic area. If the other criteria of Section 3(14) are met, then this geographic area is part of the Pacific Northwest and is not diminished in size to the extent Montana Power serves customers within that same area.

Montana Power serves electric customers throughout approximately 97,500 square miles of the western two-thirds of Montana. About 58.7 average megawatts of our electric load qualifies for the Section 5(c) Regional Power Act exchange in fiscal year 1981-82 as it is located west of the Continental Divide. An additional 15.3 average megawatts of our load also qualifies for Section 5(c) exchange as it is located within both seventy five air-line miles of the Continental Divide and the overlapping service areas of Montana Power and certain rural electric cooperatives. These cooperatives, Bonneville customers for many years, have distribution systems from which they serve both within and without the Pacific Northwest region. As you can see, a comparatively small amount of Montana Power's electric load meets the area tests demanded by Section 3(14)(B) of the Act.

The "service area" or contiguous area language found in Section 3(14) of the Regional Power Act properly should include such areas served both by Montana Power and Vigilante. I have attached Mr. James Walsh's, our legal counsel's, opinion which supports this reading of Section 3(14).

Not only legal analysis, but also past Bonneville practice suggests the propriety of our position. I am certain that you are aware that Bonneville determined to construct its

Colstrip 500 kV transmission line into eastern Montana rather than stop at some point west of the Divide or at the Divide. While this decision was to some extent influenced by environmental considerations, Bonneville nonetheless relied upon the "service area" language to extend its presence into the seventy five mile zone.

Bonneville's decision to serve Glacier Electric Cooperative's electric load further evidences Bonneville's use of the seventy five mile zone to extend its presence east of the Continental Divide. I have attached a brief statement of the history of this extension of service.

These two examples present instances of Bonneville carrying out Congress' desire, stated in P.L. 88-552; 93-454 and 96-501, to permit Bonneville the authority necessary to conduct operations within areas contiguous to the Pacific Northwest. The Glacier Cooperative situation most clearly demonstrates that Bonneville recognized the contiguous area language as authorizing it to take from the company a power contract beneficial to Montana Power's customers. Bonneville certainly should now recognize the contiguous area for the purpose of administering the Regional Power Act in applying the Section 5(c) exchange to Montana Power's residential customers.

Yet on another count, Bonneville should define the Section 3(14)(B) "service area" language as broadly as possible. As I have mentioned, Bonneville has on other occasions read this language as broadly as possible to permit Bonneville to make service extensions into areas contiguous to the Continental Divide. In the face of this prior administrative reading of its authority, Bonneville should now remain consistent and define "service area" by geography. By so doing, Bonneville would be carrying out one of the salutary results that was intended to flow from passage of the Regional Power Act: The lessening of rate disparity that existed in the Pacific Northwest between residential customers of investor owned and cooperatively or publicly owned utilities.

For these reasons, I believe The Montana Power Company's broader reading of the "service area" language found in Section 3(14)(B) of the Act is both correct and most beneficial to the region as it serves to extend all of the Regional Power Act's benefits to as many electric customers as can be accomplished.

Very truly yours,

Joe McElwain

JAMc/JFW/by

2/4

cc: Gerald Mueller
Keith Colbo
Governor Schwinden
John Melcher
Max Baucus
Pat Williams
Ron Marlenee

MONTANA
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October 14, 1981

Mr. J. A. McElwain
The Montana Power Company
40 East Broadway
Butte, MT 59701

RE: Pacific Northwest Electric Power Planning and
Conservation Act; Definition of Pacific Northwest

Dear Mr. McElwain:

You have requested that I examine Section 3(14) of Public Law 96-501 (the "Act") to determine whether it defines the Pacific Northwest region to include geographic areas located within seventy five air-line miles east of the Continental Divide which are served by rural electric cooperatives and The Montana Power Company. This request has arisen since Montana Power has determined it will not sign the Residential Purchase and Sale Agreement offered it by Bonneville Power Administration until Bonneville clarifies the statutory ambiguity found in Subsection 3(14)(B) of the Act.

Section 3(14) of the Act defines the Pacific Northwest to include the State of Montana west of the Continental Divide, and:

> "(B) any contiguous areas, not in excess of seventy five air-line miles from [the Continental Divide], which are a part of the service area of a rural electric cooperative customer served by the Administrator on the effective date of this Act which has a distribution system from which it serves both within and without such region." [Emphasis added.]

Bonneville Power Administration is currently considering whether the language above quoted and underlined should be construed to mean that the "service area" of a rural electric cooperative is defined precisely by the location of its customers. That is, regardless of other factors, the Pacific Northwest extends east of the Continental Divide in Montana only to customers of cooperatives having distribution systems both within and without the region.

I reviewed this matter and concluded that areas, when located within the seventy five air-line mile contiguous zone and served both by rural electric cooperatives and investor-owned utilities, qualify as part of the Pacific Northwest according to the plain meaning of the language found at Section 3(14)(B) of the Act.

For purposes of this opinion, Section 3(14) is a recodification of Section 1(b) of the Pacific Northwest Preference Act (P.L. 88-552) and Section 4 of the Federal Columbia River Transmission System Act (P.L. 93-454).

The phrase, "service area of a rural electric cooperative", was not expressly defined by P.L. 88-552, P.L. 93-454 or the Act. The legislative histories of these acts are likewise not helpful.

I am advised that Montana Power and Vigilante serve electric customers throughout a five county area extending from Lewis and Clark County southward to Beaverhead County.

Neither the service areas of Vigilante nor Montana Power have been certified or otherwise defined by law. Each utility's service area instead overlaps the other's service area throughout these five counties. These overlapping service territories find, for example, MPC and Vigilante customers located next to each other. Over time, new customers within this area may be served by either MPC or Vigilante, depending upon agreement or location of the nearest line that one utility or the other may then operate or decide to build. MPC, thus, serves customers that according to a more traditional view of clearly defined service areas would be located in the cooperative service area; the cooperative also serves customers that would more traditionally be viewed as located in MPC's service area.

Any reading of Section 3(14)(B) to mean that the service area of a rural electric cooperative is defined precisely by the location of its customers flies in the face of one principal reason for passage of the Act: The lessening of rate disparity between residential customers of private utilities using their own generation and of public utilities relying on Bonneville for their power supplies. As the attached memorandum concerning service provided Glacier Electric Cooperative by Bonneville demonstrates, Bonneville has administratively recognized an enlargement of the Pacific Northwest through application of the "service area" language. The extension of Bonneville's presence into this contiguous area by means of its Colstrip 500 kV line presents another instance of the application of the "service area" language.

Since Bonneville recognizes the authority granted it by this "service area" language for purposes of extension of service, it should likewise consistently apply this authority to permit extension of Regional Power Act exchange benefits into the seventy five air-line mile area, that is served both by rural electric cooperatives and Montana Power so as to carry out this purpose of minimizing rate disparity between customers of Pacific Northwest utilities.

I have for these reasons concluded that the plain meaning of the "service area" or contiguous area clause requires that where service areas of rural electric cooperatives and investor owned utilities are not defined by state law but instead overlap and fluctuate according to competitive forces, then a utility, like Montana Power, would be serving customers within the "service area of a rural electric cooperative". Bonneville's past administrative interpretation of the "service area" language provides presumptive validity to this conclusion.

Very truly yours,

JAMES F. WALSH

JFW/by/10/12

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

OFFICE OF THE ADMINISTRATOR

DEC 22 1981

In reply refer to: APP

Mr. J. A. McElwain, Chairman of the
Board and Chief Executive Officer
The Montana Power Company
40 East Broadway
Butte, Montana 59701

Dear Mr. McElwain:

This letter responds to your inquiry of October 14, 1981, by which you requested BPA to consider whether section 3(14)(B) of the Pacific Northwest Electric Power Planning and Conservation Act (Regional Act) defines "Pacific Northwest" to include geographic areas located within 75 air miles east of the Continental Divide which are served by both rural electric cooperatives and The Montana Power Company.

Review of this issue was assigned our General Counsel's office. For the reasons in the attached "Analysis - Definition of the Pacific Northwest," our General Counsel advises that the interpretation you propose is not consistent with the statutory section in question. Therefore, BPA is unable to treat as a part of the "Pacific Northwest" those portions of your service area which, while they are within 75 miles of the Continental Divide, are also within an area served by both your company and a rural electric cooperative.

There are two additional points addressed in your letter that are not covered by the enclosed legal analysis. These include (1) the observation that BPA relied upon "service area" language to construct the 500-kV Colstrip line in eastern Montana, and (2) the conclusion that in serving Glacier Electric Cooperative BPA violated its own interpretation of the 75-mile limitation.

With respect to the Colstrip transmission line, BPA's authority to construct its 500-kV transmission facilities east of the Continental Divide arose pursuant to Pub. L. 95-482. Pub. L. 95-482 appropriated funds for projects and activities to the extent and in the manner provided by the Energy and Water Development Appropriations Act of 1979 (H.R. 12928), which was enacted by Congress and vetoed by President Carter. H.R. 12928 approved BPA's expenditure of funds "for the construction of facilities to integrate new generating facilities at Colstrip, Montana, and the Bonneville Power Administration transmission grid." H.R. 12928 was referred back to Congress which then passed House Joint Resolution 1139 on October 18, 1978, to become Pub. L. 95-482. Section 101(b) of that joint resolution deals specifically with Colstrip. We have enclosed for your information a January 18, 1980, letter to Senator Baucus on this subject. The answer to question No. 3a. at pages 3-5 explains in detail the authority pursuant to which the Colstrip 500-kV facilities are being constructed.

Finally, as illustrated by your paper on "arrangements for service by BPA to Glacier Electric Cooperative, Inc.," BPA's contract with Glacier does not represent a violation of the 75-mile limitation. Instead, Glacier meets the express tests of Pub. L. 88-552 and section 3(14)(B) of the Regional Act. This is so for the reason that ". . . a part of the service area" lies west of the Continental Divide in the State of Montana. As such, Glacier meets the test prescribed by law.

We trust that this information is responsive to your request and that we have thoroughly answered all of your questions regarding the 75-mile limitation. We appreciate your bringing the question to our attention and giving us the opportunity to review this matter for you.

Sincerely,

Peter T. Johnson

Administrator

2 Enclosures

ANALYSIS

Definition of "Pacific Northwest"

The term "Pacific Northwest" is defined in section 3(14) of the Regional Act (Pub. L. 96-501). Pacific Northwest is defined as follows:

> "'Pacific Northwest', 'region', or 'regional' means—
> (A) the area consisting of the States of Oregon, Washington, and Idaho, the portion of the State of Montana west of the Continental Divide, and such portions of the States of Nevada, Utah, and Wyoming as are within the Columbia River drainage basin; and
> (B) any contiguous areas, not in excess of seventy-five air miles from the area referred to in subparagraph (A), which are a part of the service area of a rural electric cooperative customer served by the Administrator on the effective date of this Act which has a distribution system from which it serves both within and without such region." (Emphasis added).

Subsection (A) of the above definition is clear. It includes in the definition of Pacific Northwest only that "portion of the State of Montana west of the Continental Divide." Other portions of the State of Montana are excluded by subsection (A). It is subsection (B) which has provided the basis for suggestions that BPA provide service to The Montana Power Company load located east of the Continental Divide, but within 75 air miles of the Continental Divide.

There is no ambiguity in subsection 3(14)(B). This subsection specifically refers to areas "which are part of the service area of a rural electric cooperative . . . ." We believe this language requires only a factual determination of whether "any contiguous areas, not in excess of seventy-five air miles" from the Continental Divide are, in fact, "part of the service area of a rural electric cooperative." "Any contiguous areas" cannot be both "part of the service area of a rural electric cooperative" and part of the service area of an entity which is not a rural electric cooperative. Qualifying rural electric cooperatives have service areas adjacent to The Montana Power Company's service areas. In such cases, establishing the specific area which is the service area may simply involve the production of a sufficiently specific service area map.

It should be noted that subsection 3(14)(B) requires two additional factual tests. The contiguous area, in addition to being part of the service area of a rural electric cooperative, must be part of a service area of a rural electric cooperative which is a "customer served by the Administrator on the effective date of this Act", and secondly the cooperative must have "a distribution system from which it serves within and without the region." Therefore, the definition in this subsection, in addition to excluding investor-owned utilities such as The Montana Power Company, would exclude a rural electric cooperative which neither was a customer of BPA on the effective date of the Regional Act nor which had a distribution system from which it provided service within and without the Pacific Northwest.

The definition of Pacific Northwest in section 3(14) was derived from the original definition of Pacific Northwest in the Regional Preference Act, Pub. L. 88-552 (16 U.S.C. 837). "Pacific Northwest" is defined in subsection 1(b) of that Act. This original definition is set forth in full as follows:

> "'Pacific Northwest' means (1) the region consisting of the States of Oregon and Washington, the State of Montana west of the Continental Divide, and such portions of the States of Nevada, Utah, and Wyoming within the Columbia drainage basin and of the State of Idaho as the Secretary may determine to be within the marketing area of the Federal Columbia River power system, and (2) any contiguous areas, not in excess of seventy-five airline miles from said region, which are a part of the service area of a distribution cooperative which has (i) no generating facilities, and (ii) a distribution system from which it serves both within and without said region."

In addition to changing the term "distribution cooperative" to "rural electric cooperative," the principal changes in the new Regional Act definition are that Congress dropped the provision excluding cooperatives with generating facilities (section 1(b)(2)(i)), and required that the cooperative be a "customer served by the Administrator on the effective date of this Act." The first change regarding generating facilities is not material to this analysis. However, the effect of the second change is to prohibit the Administrator from serving any additional rural electric cooperatives which otherwise would have met the definition under the old definition of Pacific Northwest in Pub. L. 88-552. This definition of Pacific Northwest in Pub. L. 88-552 has been amended by section 8(e) of the Regional Act to conform with the definition in section 3(14) of the Regional Act.

The fact that Congress intended to ratify, with these minor exceptions, the definition of Pacific Northwest contained in Pub.L. 88-552 is supported by the legislative history of the Regional Act. The report of the Senate Energy and Natural Resources Committee, which initiated the change with respect to generating facilities, states as regards the definition of Pacific Northwest:

> The term 'Pacific Northwest,' and the terms 'region' or 'regional' are defined for the purposes of this act. A corresponding amendment to conform the definition included in Public Law 88-552 is provided in section 8(c) of this act." (Senate Report No. 96-272 at p. 22).

Even more revealing is the exchange between the individual Senators and Committee staff of the Senate Energy and Natural Resources Committee in the course of their business meeting "markup" session on the Regional Act. Mr. Dreyfus was the Chief Staff Counsel to the Senate Energy Committee at the time of the July 17, 1979, markup on S. 885. The Chairman of the Committee was Senator Henry M. Jackson. Senator Melcher is the senior Senator from the State of Montana.

> "Mr. Dreyfus. The next thing is the definition of Pacific Northwest Region. This is the definition that was developed and is included in the existing law, with one exception, and that is that the existing law includes those

> entities within 75 miles of the geographic region which have their own generation.
>
> "This definition eliminates the requirement from the definition. Geographically this is similar to the definition that we have been using in the Transmission Act. We are on page 5.
>
> "The Chairman. We are adopting the middle.
>
> "Mr. Dreyfus. The definition of Pacific Northwest Region.
>
> "The Chairman. We are adopting the language in the Committee print.
>
> "Mr. Dreyfus. The center column; it is the same language as was in the original bill.
>
> * * *
>
> "Senator Melcher. Mr. Chairman, Governor Judge of Montana, my governor, has proposed that all of Montana be part of the Bonneville area.
>
> "His theory was on the basis of Bonneville buying power from the thermal plant in eastern Montana. If that power were cheaper, you wouldn't want to see the people in eastern Montana denied the ability to purchase the power.
>
> "I think that the question would be better addressed at another point in the bill, making it optional for the purchase of that power by residents of Montana if such a plant is built, and I want to defer action on that concept to a different part of the bill, consideration of it to a different part of the bill. It would be more appropriate to consider it at a different point in the bill, or a different area of the bill.
>
> "Mr. Chairman. We will not act on that matter at this time. . . ." (Transcript of proceedings of the business meeting of the Senate Committee on Energy and Natural Resources, Washington, D.C., July 17, 1979, at pp. 70-71.)

When the Senate Energy Committee contined its business meeting on July 18, 1989, the Committee continued the discussion of the Pacific Northwest region within the context of the proposal that where a State lies partially within and partially without the region, it may require that cost benefits realized by an exchange of power with Bonneville be distributed among all of the utilities' residential loads in that State. This particular proposal is codified at secton 5(c)(3) of the Regional Act, and was of particular interest to the State of Montana. The following discussion is relevant to this issue. Senator McClure was the ranking minority member of the Committee at the time of the discussion and represents the State of Idaho. Mr. Sterling Munro [Monroe] was the Bonneville Power Administrator.

> "Senator McClure. There have been various efforts at various times to extend the marketing area of Bonneville outside of the Columbia Basin, and we have so far almost totally limited the sale of power within the Basin with the one exception of the exchange of power on the tie line to California . . . .
>
> "The Chairman. But we maintain, of course, in the Northwest, a full preference in priority on that.
>
> "Senator McClure. Absolutely . . . .

* * * *

> "Senator Melcher. I would like to ask Bonneville to respond to this question. With this language in there, in the Bill, what impact would this have on the Administrator in his future dealings?
>
> "Mr. Monroe [sic]. Senator, the only impact is relating to the State of Montana.
>
> "Therefore, it would only apply to the State of Montana and would permit the State of Montana to decide how the benefits of the exchange would be passed through to the consumers of, specifically, the Montana Power Company.
>
> * * * *
>
> "Mr. Monroe [sic]. The State of Utah is not within the region, therefore, the State of Utah would not, under this proposed language be given the option of spreading the benefits to anyone.
>
> "Senator McClure. The State of Wyoming is not within the region?
>
> "Mr. Monroe [sic]. That is correct. Only that portion—
>
> Senator McClure. Well, only that portion of Montana is.
>
> "Mr. Monroe [sic]. It is not the private utility portion, Senator, that is included within the 70-mile limit within the definition of the region of the Bill.
>
> * * * *
>
> "Mr. Dreyfus. The practical problem on the other side, Senator, is I am not sure that these utilities are privileged to have the rates based on geography.
>
> "They have the same rates for Montana Power Company if the credit is restricted to some portion of service area.
>
> "Senator Melcher. Well, Mr. Chairman, as a matter of fact, the law on Montana is that they cannot distribute it; and frankly, if an exchange sale is made with Montana Power and if there is some benefit to it, and I assume there would be, it would have to be spread among all of the residential users because the Montana law does not allow discrimination among the same class of user." (Transcript of proceedings of U.S. Senate business meeting, Committee on Energy and Natural Resources, Washington, D.C., July 18, 1979, pp. 132-142.)

This dialogue demonstrates that the Senate (1) intended to maintain with minor exceptions the definition of "Pacific Northwest" as specified in Pub. L. 88-552 and (2) elected to achieve equity within Montana as to the distribution of exchange benefits not by amending the definition of Pacific Northwest but by permitting the State Public Utility Commission to distribute the benefits among all of the utilities' residential loads in that State. Senator Melcher of Montana represented the State in this discussion and concurred in the result. The dialogue also demonstrates that BPA's position, even prior to the passage of the Regional Act, was that the private utility area within the 75-mile limit would not meet the definition of "region."

The definition of "Pacific Northwest" was further defined in the House of Representatives by the addition of section 1(b)(2)(i) which dropped the provision excluding cooperatives with generating facilities. Substantively, however, the provision remained unchanged from that adopted by the Senate.

Since Pub. L. 88-552 was enacted in 1964, BPA has interpreted the definition of Pacific Northwest in section 1(b)(2) of that Act to exclude service areas of investor-owned utilities. There is no basis for changing BPA's interpretation of 17 years standing. It has been suggested that this interpretation is in conflict with certain understandings which developed while the Regional Act was being considered by Congress. However, as shown by the dialogue in the Senate Energy business meetings, this appears not to be the case. The Congress elected to deal with the problem presented not by amending the definition of "Pacific Northwest," but by distributing the exchange benefits throughout the entire service area of Montana, both east and west of the Continental Divide. Should Montana elect to sign a contract with BPA, implementation of this provision will be the responsibility of the State's Public Utility Commissioner.

Careful review of the House Interior and Insular Affairs Committee Report, the House Interstate and Foreign Commerce Committee Report, the Senate Energy and Natural Resources Committee Report, and the floor debate on the Regional Act in both houses of Congress does not reveal any intent to place a different meaning on the definition of "service area of a rural electric cooperative" other than that evidenced by a literal reading of the words in section 3(14)(B), or by BPA's then 16 years of interpretation and application of the similar predecessor definition in Pub. L. 88-552.

There is, therefore, no basis for determining that The Montana Power Company's service area east of the Continental Divide, but within 75 air miles from the Continental Divide, is within the definition of "Pacific Northwest," as defined in section 3(14) of the Regional Act.

5409B

MONTANA
POWER
COMPANY mpc [illegible]

JOSEPH A. McELWAIN
[illegible]

January 6, 1982

Peter T. Johnson
Administrator
Bonneville Power Administration
P. O. Box 3621
Portland, Oregon 97208

Dear Mr. Johnson:

Receipt is acknowledged of your letter of December 22, 1981 concerning the matter of the inclusion of Montana Power rural and domestic customers within the 75-mile extension of Bonneville's service area beyond the Continental Divide.

Our legal department is preparing a reply to your General Counsel's memo. However, I have some off-the-top observations that I would like to pass along.

We have received from Bonneville in the last month a staff memorandum concerning the Montana Reservation of Power Resulting from the Libby Dam in which arguments that such a reservation exists were denied on the basis of "legislative debates are expressive of the views and motives of individual members, and are not a safe guide, and hence may not be resorted to, in ascertaining the meaning and purpose of the lawmaking body." (Sands, § 48.13).

Two weeks later, we received your letter of December 22nd where the total justification for the interpretation involved is based upon colloquy in a committee mark-up session.

In the instance of denying the 75-mile availability of the Regional Act to Montana Power Company rural and domestic customers, Bonneville, in that opinion, relies upon such colloquies and says, "This dialogue demonstrates that the Senate (1) intended to maintain with minor exceptions the definition of 'Pacific Northwest' as specified in Pub. L. 88-552 and (2) elected to achieve equity within Montana as to the distribution of exchange benefits not by amending the definition of Pacific Northwest but by permitting the State Public Utility Commission to distribute the benefits among all of the utilities' residential loads in that State. Senator Melcher of Montana represented the State in this discussion and concurred in the result. The dialogue also demonstrates that BPA's position, even prior to the passage of the Regional Act, was that the private utility area within the 75-mile limit would not meet the definition of 'region.' "

Maybe I am just a country lawyer, but the thought occurs to me that there is a great amount of inconsistency in the two opinions as to the ability to rely on dialogue in substantiating ones positions. It seems that it depends upon the results Bonneville wants to achieve as to whether or not such dialogue can be relied upon in making legislative interpretations.

Very truly yours,

Joe McElwain

Attachment B - Hungry Horse and Libby Reservation

TELECOPY TO: Gilbert LeKander (202) 331-1243

Peter Johnson
BPA Administrator
P. O. Box 3621
Portland, Oregon 97208

Dear Mr. Johnson:

The current Bonneville Power Administration rate hearings and the reported discussions therein concerning special rate treatment for certain BPA customers makes it encumbent upon me to remind you to review the Congressional mandates in the Regional Power Act, the Hungry Horse Act, and the Libby authorization regarding the reservation to the State of Montana of power resulting from those two projects.

It is important to note that in authorizing both the Hungry Horse project and the Libby project, Congress intended to establish for Montana an allocation to the hydro power produced at these projects and produced at downstream plants from storage at these two projects. This was in partial recognition of the large impact on our State imposed by the construction of these dams. The reservation to Montana was the result of diligent efforts by Senators Murray, Mansfield, Metcalf, myself and others dating back to the late 1940's.

That reservation was to be not only for the power itself, but at general BPA rates available to preference bodies from the Federal hydro system. This rate should be made available to all qualifying Montana purchasers so that the advantages of the reservation not be so diluted by pricing practices as to be rendered meaningless. It appears then that care should be taken in the present rate hearings to assure that the BPA power being sold in Montana pursuant to the reservation be priced at the lowest BPA Federal System rate.

I hope that these remarks will be helpful in your deliberations and that they can be made a part of the record in the current hearings.

Sincerely yours,

cc. Honorable Dean F. Fatzman,
Hearing Officer
P. O. Box 12999
Portland, Oregon 97212

MONTANA
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July 13, 1981

Ms. Donna L. Geiger
Public Involvement Coordinator
Bonneville Power Administration
P. O. Box 12999
Portland, OR 97212

RE: Supplemental Comments of The Montana Power Company Regarding the Draft Prototype Metered Requirements and Computed Requirements Contract

The comments that follow are intended to be in addition to, and supplementary of, those that the InterCompany Pool has filed under separate correspondence in response to notice of the Bonneville Power Administration issued June 5, 1981.

1. Introduction

By public notice issued June 5, 1981, and published in the Federal Register on June 12, 1981, Bonneville Power Administration (BPA) stated at 40 FR 31240 that:

> [s]everal matters remain unresolved in the determination of variables for the allocation formula. One issue... regards the Montana reservation pursuant to Pub. L. 85-428. Preference customers in the State of Montana hold that Pub. L. 85-428 gives them preference as to the power reserved for the State of Montana, as opposed to giving them a right to purchase amounts of power equal to the power to which the reservation applies.

It is the position of The Montana Power Company that, in the development of the prototype Metered Requirements and Computed Requirements Contract, in particular, Exhibit "J" thereto, BPA is bound by, and must give full consideration to, the long-established and unqualified preference which is extended to Montana consumers of electricity in the disposition of Federal hydroelectric energy from those hydroelectric projects that are a part of the Federal Base System and located west of the Continental Divide within the State of Montana.

The Montana reservation does not give Montana customers a right to purchase amounts of power equal to the power to which the reservation applies. A review of the acts, legislative history, and BPA policies implementing the authority which creates this geographic reservation clearly demonstrate that a significant portion of the power generated by the Hungry Horse Project ("Hungry Horse") and Libby Dam and Libby Reregulation Projects ("Libby") and at downstream plants attributable to Hungry Horse and Libby must be allocated for use primarily in the State of Montana, first, to Montana preference customers and then to non-preference Montana investor owned utility and federal agency customers.

Further, as I have suggested, this reservation does not arise only from Public Law 85-428. I am certain that the Montana preference customers are mindful that the Montana reservation includes not only a share of the prime power produced at the Hungry Horse Project and downstream plants attributable to Hungry Horse storage, but as well a share of the prime power produced at Libby and the Libby Reregulation Projects and downstream plants attributable to Libby storage.

The Montana Power Company has repeatedly stated these positions during these prototype contract negotiations.

BPA apparently acknowledges the Hungry Horse reservation, but does not acknowledge the Libby and Libby Reregulation (collectively, "Libby") reservation. Since a discussion of the existence of the Libby reservation is not germane to BPA's request for public comments on the draft prototype contracts, I will not present the full argument that demonstrably proves its existence. By separate correspondence to be submitted to BPA late this month, I will argue why the Libby reservation must be acknowledged. This argument goes to enlarge the size of the Montana reservation. It will not affect the manner in which BPA must administer that reserved power.

2. Montana Reservation Consists of Federal Base System Power.

The Montana reservation was created by Public Law 78-329, as amended by Public Law 85-428; the authorization and appropriation acts and legislative history relating to the Libby Project; and Public Law 96-501.

This legislation and legislative history are declarative that Montana preference, investor-owned utility, and federal agency consumers of electric power would have "first claim" before other BPA customers located in the Northwest to a substantial portion of the power produced both at the Hungry Horse and Libby Projects and downstream plants attributable to Hungry Horse and Libby Projects' storage (not an amount of power equal to the Montana reservation) for use "primarily in Montana". Montana preference customers would, of course, have first call on this power before other Montana customers.

The words "primarily in Montana," were cited on a number of occasions by BPA spokesmen and other public officials as demonstrating that Congress intended that Montana consumers of electric power would have first claim in the energy produced at the project and downstream plants attributable to Hungry Horse and Libby Projects' storage. While the Hungry Horse Project was under construction, BPA determined that all of the nominal prime power capability of this Project's powerplant, but not in excess of one-half of the increase in total prime power at Hungry Horse and downstream Federal plants attributable to Hungry Horse storage, was reserved for marketing in Montana. Pursuant to this policy, it was announced that several hundred thousand kilowatts of power would become available for delivery in Montana as the Federal System developed. Principal agreements completed or committed at that time included:

1. A contract executed with The Montana Power Company for

25,000 kilowatts of power at 80% load factor in 1952-53, increasing to 50,000 kilowatts the following year.

2. Power supply assurance for the Missoula Electric Cooperative, Lincoln Electric Cooperative, Ravalli Electric Cooperative and Northern Lights, Inc., then being served by BPA. (Flathead Electric Cooperative and Vigilante Electric Cooperative later were added to this list and BPA subsequently committed power to the Glacier Electric Cooperative under authorizing legislation.)

3. A contract for a supply of electric power to the Harvey Machine Company for an aluminum reduction plant to be located in the vicinity of Kalispell, Montana. (This contract later was transferred to the Anaconda Aluminum Company for its operations at Columbia Falls, Montana.)

4. A commitment of power to Victor Chemical Company for an elemental phosphorous plant near Silver Bow, Montana, later transferred to Stauffer Chemical Company when it acquired Victor.

Other industrial companies at the time filed requests with BPA for Montana plants which would use Federal Power, and these requests were considered under the Montana reservation provision.

The power provided the Montana Power under its contract with BPA has always been at Federal Base System rates.

At the time the Congress was considering Department of the Interior appropriations for Fiscal Year 1950, BPA's official view of the Montana reservation was clearly enunciated before Congressional Committees by Dr. Paul A. Raver, then BPA Administrator.

Discussing BPA transmission lines from the Hungry Horse Project to Spokane, Washington, and Anaconda, Montana, Dr. Raver stated:

> ***the tie line will be used for whatever power needs of that area The Montana Power Company or any other agency that is in Montana wants it for.[1]

Later, in discussing, the integration of the Hungry Horse Project with other plants on the Columbia River System, Dr. Raver stated:

> I think you have to be fair and let the people of Montana have the power that they normally would get out of Hungry Horse, and I assume they will get at least that much. * * * I certainly do not think that the people of Montana are going to be properly served unless they have an opportunity for some big industrial development out of that added power.[2] [Emphasis added.]

Appearing before a Senate Subcommittee on the same Interior Department appropriations bill, Dr. Raver said:

---

(1) House Hearings, Interior Department Appropriations, FY 1950, Part 2, Page 116.

(2) Ibid., Page 109.

> We believe that western Montana has first claim to *this power*. Furthermore, economical marketing of *Hungry Horse power requires that a substantial block be sold in western Montana*.[3] [Emphasis added.]

The question of the State of Montana's preference in the sale of Hungry Horse power was cited in 1952 by Samuel Moment, economist for BPA, in a series of articles published by "Pacific Northwest Industry," a University of Washington magazine. In that series, Dr. Moment wrote:

> Under the law, the State of Montana has priority for a substantial portion of Hungry Horse power. This requirement led to the location in Montana of one aluminum plant and, therefore, did not deprive Washington or Oregon of any assured power supply.[4]

The commitments made in the State of Montana for power developed at site and downstream from Hungry Horse demonstrate BPA's acceptance of, and support for, the Montana reservation.

Recognition of the Montana reservation in the sale and distribution of Federal Base System power attributable to projects in the State of Montana was not limited to acts and determinations at the time the Hungry Horse Project was constructed.

The Congress passed and the President signed legislation in 1963 to guarantee electric consumers in the Pacific Northwest first call on electric energy generated at Federal hydroelectric plants in that region.[5] That Pacific Northwest Power Preference Act (Pub. L. 88-552) contained a specific reservation of Hungry Horse power for Montana. In hearings before the Senate Committee on Interior and Insular Affairs in connection with the legislation, it was pointed out that the bill provided:

> Nothing in this Act shall be construed to modify the geographical preference of power users in the State of Montana which is established by the Hungry Horse Dam Act (Act of June 4, 1944, 58 Stat. 270), as amended.[6]

A section-by-section analysis of the legislation, prepared by the Department of Interior, contained these comments:

> Section 1 - While the sections referred to above would make, by their terms, a partial modification of the geographical preference in favor of Montana which is contained in Section 1 of the Hungry Horse Dam Act, the savings clause in Section 8 of the bill prevents them

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(3) Ibid., Page 116.

(4) Senate Hearings, Interior Department Appropriations, FY 1950, Part I, Page 1202.

(5) "Pacific Northwest Federal Power Program and the Public Welfare, by Samuel Moment, Pacific Northwest Industry, October, 1952, Page 5.

(6) Public Law 88-552, 88th Congress, 1st Session (78 Stat. 756).

> from having that effect. The existing preference in the Hungry Horse Dam Act will remain unaffected.
>
> Section 2 - * * * Such exceptions (to the prohibition against sale, delivery or exchange for use outside the Pacific Northwest of any Federal hydroelectric power except surplus energy and peaking capacity) include * * * sale or exchange in eastern Montana of Hungry Horse power subject to the geographical preference in favor of Montana in Section 1 of the Hungry Horse Dam Act.
>
> Section 8 - * * * As pointed out in the discussion under subsection (b) of Section 1, the geographical preference in favor of power users in Montana which is established by Section 1 of the Hungry Horse Dam Act is not affected.[7]

The second major Federal hydroelectric project constructed in western Montana was the Libby Project on the Kootenai River in the northwestern part of the State. Legislative history supports the application of the State of Montana's reservation with respect to the power produced at that project.

The plain language of the statutes creating the Montana reservation, the legislative history surrounding these acts, and BPA's administrative policy implementing the reservation forcefully demonstrate that the reservation is a share of the power produced at the Hungry Horse and Libby Projects and downstream plants attributable to Hungry Horse and Libby Projects' storage.

Thus, regardless whether the Montana customer of BPA is a preference agency, an investor-owned utility or a Federal agency, if it receives a share of the Montana reservation during periods of insufficiency, it is power from the Federal Base System and must be provided at a rate consistent with what has been referred to as the "Section 7(b)" rate pool created by Public Law 96-501. Public Law 78-329, as amended, and the authorization and appropriation acts surrounding the Libby Project simply do not differentiate between these classes of customers located within the State of Montana as regards the price to be paid for power marketed from Hungry Horse and Libby Projects in satisfaction of the reservation. In point of fact, Section 7(f) of Public Law 96-501 provides that:

> Rates for all other firm power sold by the Administrator for use in the Pacific Northwest shall be based upon the cost of the portions of the Federal Base System resources...which in the determination of the Administrator, are applicable to such sales. [Emphasis added.]

The "cost of the portion of the Federal Base System resources...which...are applicable to...sales" that satisfy the Montana reservation are the costs attributable to the Hungry Horse and Libby Projects and downstream plants that generate power attributable to Hungry Horse and Libby Projects' storage.

---

(7) Pacific Northwest Power Preference: Hearings Before the Senate Interior & Insular Affairs Committee, April 1, 1963.

3. Federal Agency Customers Are Not Entitled to the Preference and Priority Provisions of the Bonneville Project Act.

Exhibit "J" to the Metered Requirements and Computed Requirements Contract ("Contract") incorrectly assumes that Federal agency customers of BPA are entitled to the preference and priority provisions of the Bonneville Project Act. This assumption is legally incorrect.

Section 4(a) of the Bonneville Project Act ("Act") provides:

> In order to insure that the facilities for the generation of electric energy at the Bonneville project shall be operated for the benefit of the general public, and particularly of domestic and rural consumers, the administrator shall at all times, in disposing of electric energy generated at said project, give preference and priority to public bodies and cooperatives.

Federal agency customers of BPA are neither "public bodies" nor "cooperatives".[8]

Section 7 of Public Law 96-501 does provides:

> [t]he Administrator shall establish a rate or rates of general application for electric power sold to meet the general requirements of public body, cooperative, and Federal agency customers within the Pacific Northwest, and loads of electric utilities under Section 5(c).

A preference like that afforded public bodies and cooperatives is not enlarged by Section 7 of Public Law 96-501 to include Federal agency customers.

Thus Exhibit "J" to the Contract must be changed to reflect that the Federal agency class of customer is entitled to no greater preference and priority than an investor-owned utility possesses under the Act.

4. Exhibit "J" to the Contract.

Exhibit "J" to the Metered Requirements and Computed Requirements Contract requires revision to correct a single, though major, inconsistency with the law creating the Montana reservation.

Exhibit "J" assumes that Montana non-preference customers of BPA are not entitled to a share of the Federal Base System that generated the Montana reservation. As discussed above, that assumption is incorrect and unsupportable.

During periods of insufficiency within the Pacific Northwest, the Montana reservation cannot be allocated to preference customers located within the region until it is first allocated to Montana public agencies and cooperatives and then to Montana non-preference customers, including Federal agency customers.

Very truly yours,

James Walsh

JAMES F. WALSH

---

(8) Section 3, Bonneville Project Act, 16 USC 832b.

MONTANA
POWER
COMPANY
GENERAL OFFICES 40 EAST BROADWAY BUTTE, MONTANA 59701

JOSEPH A. McELWAIN
CHAIRMAN OF THE BOARD
AND
CHIEF EXECUTIVE OFFICER

August 5, 1981

Peter Johnson, Administrator
Bonneville Power Administration
P. O. Box 12999
Portland, Oregon 97212

RE: MONTANA RESERVATION OF POWER RESULTING FROM LIBBY DAM

Dear Peter:

As has been explained in The Montana Power Company's discussions with the Bonneville Power Administration, it is our position that a portion of the power resulting from the building of Libby Dam has been reserved for Montana customers by Congress.

As requested by the Bonneville Power Administration, our Legal Department has prepared an explanation of that position, and enclosed is a copy of that explanation.

If you have any questions concerning this matter, please let us know.

Very truly yours,

Joe McElwain

J. A. McElwain
Chairman of the Board and
Chief Executive Officer

Enclosures.

LIBBY DAM RESERVATION OF POWER FOR MONTANA

I. FACTS

The construction of the Libby Dam was authorized by Congress in the Flood Control Act of 1950, Ch. 188, tit. II, 64 Stat. 172, reprinted in 1950 U.S. Code Cong. and Ad. News 2384. That act was an omnibus act which authorized a myriad of dams and other flood control projects all over the country. That act does not expressly address the question of what disposition is to be made of power generated at the dams authorized. However, the Flood Control Act of 1944, 16 U.S.C.S. §825s (1980), provides that power produced at Federal Projects is to be disposed of by the Department of Interior; public utilities and cooperatives are given preference in the allocation of such power.

Because the Libby Dam site is very close to the Canadian border, before planning and work on the Dam could begin, an agreement to allow water to be backed up into Canada had to be made. Such a treaty with Canada was made in 1961 and in the debates on the treaty on the Senate floor, Senator Mansfield explained that if Libby Dam was built "every effort" would be made "to see to it that, as in the Hungry Horse project," Montana would receive a reservation of electricity resulting from the construction of Libby Dam. 107 Cong. Rec. 4141 (1961). The Acting Chairman of the Senate Foreign Relations Committee, Senator Sparkman agreed that in considering the Treaty it was understood that Montana would have a power reservation from the Libby Dam as follows:

> Mr. Mansfield...
>
> It is the understanding of the Senior Senator from Montana that, insofar as Libby Dam is concerned, if it is built, every effort will be made to see to it that, as in the Hungry Horse project, we [Montana] will achieve a proportionate share of power. . . .
>
> Mr. Sparkman. The Senator is correct in his understanding.
>
> Mr. Mansfield. I thank the Senator.

107 Cong. Rec. 4141 (1961).

As soon as the treaty made it possible to build Libby Dam, the Kennedy Administration asked Congress for a special $350,000 appropriation to begin planning work on the Libby Dam. The funding was included in the Third Supplemental Appropriations Bill of 1961, H.R. 5188, 87th Cong., 1st Sess. (1961) reprinted in 1961 U.S. Code Cong. and Ad. News 25, by an amendment which read as follows:

> Department of Defense - Civil Functions, Department of the Army, Rivers and Harbors and Flood Control.
>
> Construction General; For an additional amount for "Construction General," $350,000 to remain available until expended.

107 Cong. Rec. 4889 (1961).

The amendment was presented to the Senate Appropriations Committee and Senators Mansfield and Metcalf testified that it was their "understanding that insofar as the Libby project was concerned, there would be a preference for Montana, based on the Hungry Horse project." 107 Cong. Rec. 4876 (1961). In the Senate floor debates the following exchange took place between Senators Metcalf, Mansfield and Hayden, Chairman of the Senate Appropriations Committee:

> Mr. Metcalf...It is my understanding and I think it is also the understanding of the Senior Senator from Montana [Mr. Mansfield], that [there] would be the general power preference for this dam under

> the same conditions and precedents as at Hungry Horse.
>
> Mr. Hayden. Yes, there is no doubt that that is the general purpose, as stated.
>
> Mr. Mansfield. And there is no question that Montana will have a prior power preference, based on that legislation?
>
> Mr. Hayden. That has been the understanding all along.
>
> Mr. Metcalf. And this item [the amendment] is for the purpose of taking care of the planning on that, is it?
>
> Mr. Hayden. Yes. It is necessary to begin the planning now, so the construction work can begin within the time specified in the treaty.
>
> Mr. Mansfield. And the power preference for Montana will be included?
>
> Mr. Hayden. Yes.

107 Cong. Rec. 4876-7 (1961).

The amendment was approved the same day as was the entire Supplemental Appropriations Bill. 107 Cong. Rec. 4889 and 4896 (1961). The Senate then moved that it insist on its amendments to the Appropriations Bill and a committee was appointed to have a conference with the House. Two of the Senate conferees appointed were Senators Hayden and Ellender.

In 1966, in Senate floor debates on appropriations for construction funds for Libby, Senator Mansfield again reminded the Senate that the $32 million appropriation for the Libby Dam included a power reservation for Montana. Senator Ellender, Chairman of the Senate Public Works Appropriations Subcommittee, agreed that the reservation had always been intended, speaking of the Libby Dam as follows:

> It is my belief that Montana is entitled to have priority in the distribution of electricity generated by the falling water. . . .
>
> Montana would be entitled to electricity produced because of its proximity to the facility that produced the electricity, and, I believe Montana is entitled to it [a preference for power as in the case of Hungry Horse]. ...

And,

> I do not see how the Bonneville Power Administration can fail to provide at least a fair share of electricity generated to [Montana].

112 Cong. Rec. 25779-80 (1966).

Another important event in this discussion is the Bonneville Power Administration's (BPA) treatment of the question of the Libby Dam Reservation. While BPA has never explicitly approved the reservation, it has heeded the words of Senator Ellender quoted above and provided Montana with "a fair share" of the electricity generated.

In a letter to Senator Mansfield dated April 12, 1967 (copy attached as Exhibit A), the Assistant Secretary of the Interior explained that the BPA was aware of the statements in the legislative history regarding the Libby reservation. He also explained that when a Libby reservation was computed and added to the Hungry Horse reservation, electric loads then committed to Montana already exceeded the reservations. The Assistant Secretary concluded:

> In summary, the Hungry Horse Act and subsequent power allocation to Montana attracted desirable electro process loads to the State and the subsequent scheduling of Libby made it possible for BPA to serve the expanded requirements of its customers in Montana.

The final event which affects this question is the enactment of the Northwest Regional Power Bill of 1980, 16 U.S.C. §839 (1981). Section 10(f) of the bill provides:

> The reservation under law of electric power primarily for use in the State of Montana by reason of the construction of Hungry Horse and Libby Dams and Reservoirs within the State is hereby affirmed. Such reservation shall also apply to 50 percentum of any electric power produced at Libby Reregulating Dam if built. Electric power so reserved shall be sold at the rate or rates set pursuant to Section 7.

16 U.S.C. §839 g(f) (1981).

Also, S. Rep. No. 96-272, 96th Cong. 1st Sess. 35 explains this section as follows:

> This section is intended to insure that the operation of this measure will not impair the existing reservation of certain electric power from Hungry Horse and Libby Dams and to provide that the reservation shall extend to Libby Reregulating Dam when it is constructed. [Emphasis Added]

II. ARGUMENT

The BPA, is bound to reserve power for Montana resulting from the building of Libby Dam in the same manner which it reserves for Montana electricity resulting from Hungry Horse. This Montana Libby reservation was created by virtue of the legislative history to acts appropriating money for Libby Dam, and, even assuming that that legislative history did not create a reservation, it was ratified and thus made lawful by the Northwest Regional Power Bill of 1980.

A. Legislative History

In this situation, there is a clear legislative intent to create a reservation. It is generally true that where the meaning of the statutory language is clear, the legislative history cannot be used to upset that meaning; however, if there is unambiguous legislative history which provides the context for the statutory language, such express legislative intention cannot be lightly ignored.

In Tidewater Oil Co. v. United States, 409 U.S. 151, 158, 93 Ct. 408, 413 (1972), the Supreme Court explained:

> But, while the clear meaning of statutory language is not to be ignored, "words are inexact tools at best" [citation ommitted], and hence it is essential that we place the words in their proper context by resort to legislative history.

And in Harrison v. Northern Trust Co., 317 U.S. 476, 479, 63 S.Ct. 361, 363 (1943) the Court stated:

> ...[T]here is wisely no rule of law forbidding resort to explanatory legislative history no matter how "clear the words may appear on 'superficial examination.'"

The Court used the above language in reversing the lower court's refusal to examine the legislative history of a statute on the grounds that the section was unambiguous.

In the Ninth Circuit a similar conclusion was reached in League to Save Lake Tahoe, Inc. v. Troundary, 598 F.2d 1164, 1172 (9th Cir. 1979), where the court stated:

> Although ambiguous legislative history should not be allowed to control the ordinary meaning of the statutory language [citation omitted], the expressed understanding of the conference committee, commended to the full Congress in the Conference Report and subsequently adopted is not lightly to be disregarded, particularly where, as here, that understanding is supported by other evidence as well. [citations omitted].

In the present situation, the legislative history is unambiguous in showing that the treaty with Canada was ratified under the express assumption that Montana would receive a reservation of power and funds were appropriated under the same express assumption. Therefore, it is not inappropriate to examine the legislative history concerning the reservation.

In the case of the treaty with Canada, the acting Chairman of the Senate Foreign Relations Committee said on the Senate floor that the Libby Dam site would be developed with a reservation of power for Montana.

When the specific item was added as an amendment to the Third Supplemental Appropriations Bill of 1961 to fund planning for Libby Dam, the legislative history shows that the appropriation was conditioned on a Montana reservation of power. Again, the language of the amendment which appropriated $350,000 for the Libby Project is silent on the reservation question, but the legislative history is unambiguous in its intention to create a power reservation for Montana.

On the Senate floor, Senator Hayden, the Chairman of the Senate Appropriations Committee, in discussing the amendment for funding planning for Libby Dam stated unqualifiedly that it was his and the appropriation committee's intention that Montana was to receive a reservation of power resulting from the dam. Senators Mansfield and Metcalf appeared before the Appropriations Committee on behalf of the amendment, and they intended the appropriation to include the reservation for Montana. It is important to recognize that while the language of the amendment says nothing about a reservation, neither does it say anything about the money being used for Libby Dam; yet, no one would argue that the money was not intended for planning for Libby in light of the following language:

> Mr. Mansfield. ... I appeared before the committee on behalf of a $350,000 appropriation to enable the Corps of Engineers to resume planning on Libby Dam in northwestern Montana.

107 Cong. Rec. 4876 (1961).

Just as the fact that the money was to be used on the Libby project cannot be questioned, neither can the fact that Congress intended that Montana receive a power reservation be questioned. Additionally, subsequent debates on appropriations for Libby Dam in 1966 also pointed out the Montana reservation, which serves to strengthen the notion that Congress knew about and intended to give Montana the reservation.

The 1961 amendment to fund Libby Dam planning was considered in debate on the Senate floor separately from the rest of the Third Supplemental Appropriations Bill, and thus an independent legislative intention concerning that amendment can be discerned. Further, it was resolved by the Senate that the amendment be insisted upon in conference with the House. Senator Hayden, who had expressed his intention that the Montana reservation be created, was a member of the conference committee and the amendment became law. Thus, Congress' intention that the funding for Libby Dam be read as including a power reservation for Montana is implicit in the appropriations legislation.

It is also important to note that there was never any opposition in the Congressional debates to the statements that the appropriations for Libby Dam included a Montana power reservation.

It might be argued, however, that the reservation could not have been created in the above manner, because the legislation was an appropriation act. But, it is not the case that appropriations legislation cannot create substantive law. For example, appropriations have been held to create substantive law implicitly by ratifying practices or interpretations of administrative agencies when Congress knew of the practice or interpretation. E.g., Brooks v. Dewar, 313 U.S. 354, 61 S.Ct. 979 (1941); Isbrandtsen -Moller Co. v. United States, 300 U.S. 139, 57 S.Ct. 407 (1937); Maun v. United States, 347 F.2d 970, 978 (9th Cir. 1965).

Cella v. United States, 208 F.2d 783, 790 (7th Cir. 1953), involved a rider to an appropriations bill which created a procedure for suspending registrants under the Packers and Stockyards Act. The Court held that the rider enacted permanent legislation, adding:

> Congress has the power to enact permanent legislation in an Appropriations Act.

Id. At 790.

The Ninth Circuit has agreed with that proposition:

> That Congress can amend substantive legislation by provisions in an appropriations bill is not questioned. [citation omitted].

NLRB v. Thompson Products, Inc., 141 F.2d 794, 797 (9th Cir. 1944). Thompson Products, goes on to explain that whether or not substantive legislation is enacted depends upon the intention of Congress. In this case, Congress must have intended to create a permanent reservation because the reservation could not be effective only for the year for which funds were appropriated, since the reservation could not be effective until the Dam was built and in operation.

There are cases where it has been held that an appropriations act did not create substantive legislation, however, those cases are distinguishable. Most notably, Tennessee Valley Authority v. Hill, 437 U.S. 153, 98 S.Ct. 2279 (1978) (TVA), held that appropriations acts involved did not create substantive law; however, TVA did not hold that appropriations acts can never create substantive law.

In TVA the appropriations acts were alleged to have repealed, by implication, the Endangered Species Act as it applied to the Tellico Dam project. The Court explained that repeals by implication are not favored and then found that there was not sufficient evidence in the legislative history to show that Congress intended to repeal. The Court further explained that repeals by implication by appropriations acts are even more disfavored because,

> ... legislators are entitled to operate under the assumption that the funds will be devoted to purposes which are lawful and not for any purpose forbidden.

In the case of the appropriations for Libby in 1961 and 1966, the proviso that Montana be given a reservation of power generated at Libby did not accomplish a result prohibited by Congress, it simply added a reservation in allocating power resulting from Libby Dam.

Further, the Libby reservation for Montana is supported by strong evidence that Congress intended to create the reservation, whereas in TVA, the Court noted that the evidence of the position urged by TVA was statements of the Appropriations Committee. In this case the entire Senate, in debate, was made aware that the $350,000 appropriation was for Libby Dam and that Montana would receive a reservation of power. This information was provided to the Senate immediately before it voted on the item, and, the Senate insisted upon the amendment in the conference committee with the House.

Finally, in TVA, the Court noted that the appropriations for the Tellico Dam "represented relatively minor components of the lump-sum amounts for the entire TVA budget." At 2299. Such was not the case in the 1961 Libby Dam appropriation. The amount was specifically separated out in an amendment to the Supplemental Appropriations Bill and was clearly intended only for the Libby Project. Thus, it is possible to discern a legislative intent concerning the appropriation.

The Ninth Circuit, in Libby Rod and Gun Club v. Poteat, 594 F.2d 742, 745 (9th Cir. 1979), (involving the Libby Dam,) refused to hold that TVA requires the "conclusion that courts can never construe appropriations as congressional authorizations." The Court went on to decide that there was "insufficient evidence in the legislative history to show that Congress had intended to authorize the Libby reregulating dam." It should be noted that in Libby Rod and Gun, a statute (33 U.S.C.A. §401) provided that it was "unlawful" to build a dam without "the consent of Congress." Thus, the Court was reluctant to imply consent when "confronted ... with a specific statute that requires congressional authorization of dam projects." At 746.

In summary, the legislative history shows an unambiguous Congressional intention in both the 1961 and 1966 appropriation legislation to create a Libby reservation of power for Montana. Further, this is not a case where appropriations acts cannot create such permanent legislation. Any other conclusion would ignore the express will of Congress.

B. Northwest Regional Power Bill

Even assuming, however, that the appropriations acts had not created the Montana reservation, the reservation was made permanent and lawful by Congress in the enactment of the Northwest Regional Power Bill of 1980.

Whether or not the appropriations acts lawfully created the Montana reservation, it was generally assumed to exist. For example, an article appeared in the Great Falls Tribune (copy attached as Exhibit "B") on May 7, 1967, which explained that the Libby power reservation for Montana "will serve as a powerful magnet to draw industry."

Futhermore, the Bonneville Power Administration has operated as if the reservation existed in that it has always allocated at least the amounts of the Hungry Horse and Libby reservation to Montana customers. In fact, in the letter to Senator Mansfield from the Assistant Secretary of the Interior of April 12, 1967, it is acknowledged that the scheduling of Libby "made it possible to serve the expanded requirements of [BPA's] customers in Montana." BPA thus led Senator Mansfield and others to believe that Montana would be given preference in allocations of power resulting from Libby Dam, in accordance with the debates on appropriations for Libby. The BPA did not deny the existance of the reservation and made allocations which did not conflict with the reservation.

Thus, when Congress passed the Northwest Regional Power Bill and included the §10(f) provision which specifically affirmed the Libby reservation, an intention by Congress to continue the policy of the reservation was evidenced. The

Senate Report in explaining §10(f) speaks of the "existing reservation" of power from Libby and Hungry Horse Dam. This language shows that Congress believed that the Libby reservation "existed" and that Congress intended that it continue to exist. In fact, Congress, by this section, intended to expand the Libby reservation to include power from the Libby reregulating dam, when built.

The words used by Congress in §10(f) are important. The statute "affirms" the Libby reservation. Black's Law Dictionary, revised fourth edition (1968) defines "affirm" as follows: "To ratify, make firm, confirm, establish, reassert." Webster's Third New International Dictionary (1976) defines "affirm" as: "a. validate, confirm" and "b. to state positively or with confidence; declare as a fact." Thus by "affirming" Congress meant to "ratify," "establish," "validate" and "declare as fact" the Libby reservation. Thus the "affirmation" literally enacts the reservation even if it were not enacted earlier.

It might be argued that Congress intended to "affirm" the reservation only if it, indeed, was "law", and that because it was not "law", Congress did not intend that it be continued. However, if that argument succeeds, §10(f) as it applies to Libby and the reregulating dam is meaningless and of no effect. It is a "cardinal principle of statutory construction" that statutes are to be interpreted such that "no clause, sentence or word is rendered superfluous." Rockbridge v. Lincoln, 449 F.2d 567, 571 (9th Cir. 1971). That principle has been repeatedly endorsed and applied by the Ninth Circuit. In Jacobson v. Rose, 592 F.2d 515, 520 cert. denied, 442 U.S. 930, 99 S.Ct. 2861, (9th Cir. 1978) the Court stated: "Generally, we will not read a statute to render language superfluous." The Tenth Circuit applied the principle in Jackson v. Kelly, 557 F.2d 735, 740 (10th Cir. 1977) stating:

> We shall not and do not suppose that Congress intended to enact unnecessary statutes.

If §10(f) is interpreted to "affirm" the Libby reservation only if it was already law, and if the reservation was not law, then the section as it applies to Libby and the reregulating dam is superfluous.

If Congress wanted to "save" the Libby reservation, and indeed extend the reservation to the reregulating dam, we must assume that Congress approved the reservation and wished it to continue. Any other interpretation requires the supposition that Congress "intended to enact unnecessary legislation."

III. CONCLUSION

Based upon the foregoing, The Montana Power Company submits that the Bonneville Power Administration is required by law to reserve power resulting from Libby Dam for Montana customers in the same manner that power is reserved for Montana from Hungry Horse.

PKM2H

EXHIBIT A

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D.C.

INFORMATION COPY
FROM
MIKE MANSFIELD
UNITED STATES SENATOR
MONTANA

APR 12 1967

Dear Senator Mansfield:

This is a further response to your letter of December 15 regarding the Libby Dam and a reservation of power for the State of Montana.

The Montana reservation from Hungry Horse was created in the Hungry Horse Act of 1944 which stated in part that the purpose of the project was "... for the generation of electric energy, and for other beneficial uses primarily in the State of Montana ..." The amount of this reservation was determined to be 221,000 kw by administrative action in 1950. For the operating year 1966-67 BPA will serve an average load of 354,000 kw in Montana or 133,000 kw greater than the Montana reservation.

With respect to a Libby Dam reservation for Montana we are aware of the colloquy between you and Senator Ellender during last year's debate on the Public Works Appropriation Bill regarding a Libby preference. We are also mindful of similar statements made by you and Senator Metcalf in 1961 during Senate debate on the Columbia River Treaty.

Due to the increased power made available on the Federal system by the Canadian Treaty projects (including Libby), the NW-SW Intertie and Hanford, BPA determined there would be additional blocks of firm power available for industries beginning in 1968-69. With the assurances of the construction of Libby on a timely schedule, BPA agreed to serve Anaconda Aluminum's fourth and fifth potlines at Conkelley, Montana. The new potlines will increase Anaconda's load in Montana 144,000 kw by 1973-74, the year that Libby is scheduled to begin operation.

The expanded power supply program will also enable BPA to continue to meet the requirements of five Montana REA Cooperatives whose loads are expected to increase from 16,000 kw in the current year to 30,000 kw in 1973-74. BPA is also negotiating with the Montana Power Company for a wheeling agreement to serve the needs of the Vigilante Cooperative, presently served by the Company.

Finally, BPA also serves two other industries and two private utilities in Montana. The current and projected loads of all BPA customers in Montana are summarized on a table which is attached.

A Libby Project allocation to Montana computed in the same manner as the Hungry Horse allocation would be 205,000 kw. This added to the 221,000 Hungry Horse allocation would total 426,000 kw. The estimated loads presently under contract already exceed this amount. It would appear, therefore, that the objectives of a Libby Project allocation have already been accomplished. In summary, the Hungry Horse Act and subsequent power allocation to Montana attracted desirable electro process loads to the State and the subsequent scheduling of Libby made it possible for BPA to serve the expanded requirements of its customers in Montana.

Sincerely yours,

ASSISTANT
Secretary of the Interior

Enclosure.

Montana Load Estimates

	Average Megawatts		
Cooperatives	1966-67	1973-74	1976-77
Flathead Elec. Coop.	4.4	14.5	15.5
Lincoln Elec. Coop.	2.4	4.4	4.7
Missoula Elec. Coop.	3.0	5.4	6.3
N. Lights Coop. (Mont.)	.7	.9	1.1
Ravalli Elec. Coop.	3.2	4.9	5.5
Total, REA	15.9	30.1	33.1
Industries (firm)			
Anaconda Aluminum	173.2	277.2	277.2 ~~273.2~~
Cominco American	7.6	7.6	7.6
Stauffer Chemical (Victor)	36.2	36.2	36.2
Total, Industry	217.0	321.0	321.0
Industries (interruptible)			
Anaconda	54.4	94.0	94.0
Stauffer Chemical (Victor)	20.8	20.8	20.8
Total interruptible	75.2	114.8	114.8
Privately Owned Utilities			
Montana Power Co.	40.0	40.0	40.0
PP&L - Kalispell	5.6	14.0	14.0
Total	45.6	54.0	54.0
Total all loads			
Firm	278.5	405.1	408.1
Interruptible	75.2	117.0	117.0
TOTAL	353.7	522.1	525.1

EXHIBIT B

[From the Great Falls Tribune, May 7, 1967]

POWER RESERVATION WILL HELP MONTANA

A reservation of power from Hungry Horse Dam for Montana was responsible for construction of the big Anaconda Aluminum Co. plant at Columbia Falls.

The aluminum plant, now expanding significantly, created several hundred new jobs and has enriched the economy of Montana.

Fortunately for Montana, a reservation of power for Montana also has been provided for Libby Dam.

The objectives of a reservation of power for Libby Dam to be used in Montana apparently have been accomplished, the Department of Interior notified Sens. Mike Mansfield and Lee Metcalf last week.

That reservation of power for use in Montana will serve as a powerful magnet to draw industry near the big Libby Dam when the $350 million project is completed in 1973–74.

Montana can look forward to booming business in northwestern Montana during the construction of Libby Dam and then to a long-term industrial growth after the 420-foot-high concrete dam is finished because of the wise power reservation provision.

Montana owes a vote of thanks to Senators Mansfield and Metcalf for the power reservation clause.

When the Libby Dam treaty between Canada and the United States was approved. Teno Roncalio, of Cheyenne, Wyo., lauded the Montana senators for their vigilance.

Roncalio, chairman of the Canada-International Joint Commission, said "the people of Montana are assured of a block of Libby Dam power because their two U.S. senators insisted on its reservation for the state during the Senate debate on treaty ratification."

Mansfield had blazed the path for the Libby Dam power reservation clause by obtaining one for Montana for Hungry Horse Dam power.

The power reservation provision will be a magnet for continued industrial growth in northwestern Montana.

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

OFFICE OF THE ADMINISTRATOR
DEC 9 1981

In reply refer to: APP

Mr. J. A. McElwain
Chairman of the Board and
Chief Executive Officer
The Montana Power Company
40 East Broadway
Butte, MT 59701

Dear Mr. McElwain:

Subject: Montana Reservation of Power Resulting from Libby Dam

We received your letter and legal department explanation regarding a Libby Dam reservation of power for Montana. The latter document was reviewed by BPA staff, and they prepared a position paper on the subject, which is enclosed herewith. We have reviewed and are in agreement with our staff's paper and their conclusion that Congress has not created a Libby reservation.

Please feel free to contact us if any further questions arise.

Sincerely,

Peter T. Johnson

Peter T. Johnson
Administrator

Enclosure

STAFF DISCUSSION PAPER

Libby Dam - Alleged Power Reservation to Montana

In a recent legal brief submitted by Montana Power Company (Montana) the argument is made that, although the act authorizing the Libby Dam (64 Stat. 170, May 17, 1950) does not authorize a Montana preference, subsequent legislation and legislative history establish a Montana power reservation relative to that dam. These arguments are reiterative of a Montana position on Libby which has been previously submitted to and rejected by the Bonneville Power Administration (BPA). The issue was squarely addressed in the 1980 draft allocation EIS, with BPA concluding:

> "With one clear exception, found in the Hungry Horse Project Act of 1944, the authority of the Bonneville Power Administrator to determine which preference customers shall receive the benefits of these resources is virtually

> unlimited. The Hungry Horse Act imposes a geographic preference in terms of disposition of power within the Bonneville service area. The Act gives an undefined geographical preference for power generation to Montana. While it has been argued that the Act which authorized the construction of the Libby Dam also includes a georgraphic [sic] preference for Montana, the statute provides merely that the 'Libby Dam, Kootenai River, Montana' among other projects, is authorized and subject to the Flood Control Act of 1944. (64 Stat. 170, 179) Nothing in the Libby Dam Act indicates any congressional desire to assure Montana's receipt of the benefits of the project, such as is apparent in the Hungry Horse Act. Statutory enactment by Congress would be required to achieve such a reservation in the face of the Flood Control Act's preference clause (16 U.S.C. 825s) assuring preference in the deposition of power to the region's public bodies and cooperatives, without mention of a location."

BPA has never acknowledged a Libby reservation, and does not do so now. As evidenced by the earlier Hungry Horse Act, Congress knew how to accomplish a geographical preference, but they did not do so in the Libby authorization. The "plain meaning rule" obviates any need for statutory construction. "Where the language is plain and admits of no more than one meaning the duty of interpretation does not arise and the rules which are to aid doubtful meanings need no discussion." Sands, Sutherland on Statutory Construction, § 46.01.

This is equally true of Montana's reference to the legislative history of the related Canadian Treaty and pertinent appropriations acts. Those acts make no mention of a reservation of power on behalf of Montana, and use of their legislative history to establish such a reservation is clearly inappropriate. "It is not allowable to interpret what has no need of interpretation." Sands, § 46.01. Also, the history relied on by Montana originated in the legislative debates, and as such, is fairly criticized as self-serving and indicative of the intent of only a few members of Congress. "Legislative debates are expressive of the views and motives of individual members, and are not a safe guide, and hence may not be resorted to, in ascertaining the meaning and purpose of the lawmaking body." (Sands, § 48.13). Finally, as to the act authorizing Libby, it is postenactment, and therefore disfavored. "Although a subsequent legislature has power to change an act to achieve whatever prospective meaning or effect it desires, it has been held that the views of members of subsequent legislatures as to the meaning of acts passed by previous legislatures are not entitled to much weight." Sands, § 48.16.

Montana's only new argument is that the Pacific Northwest Electric Power Planning and Conservation Act (Regional Act), 94 Stat. 2697 states in section 10(f) that:

> "The reservation under law of electric power primarily for use in the State of Montana by reason of the construction of Hungry Horse and Libby Dams and Reservoirs within that State is hereby affirmed. Such reservation shall also apply to 50 per centum of any electric power produced at Libby Reregulating Dam if built. Electric power so reserved shall be sold at the rate or rates set pursuant to section 7."

The Regional Act only affirms "the reservation under law" (emphasis added). As indicated above, a statutory reservation for Libby Dam never occurred, hence there is no Libby reservation to affirm. This provision and BPA's conclusion regarding its effect are not considered unreasonable, nor an interpretation that renders a part of a statute superfluous, as Montana argues. The existence of a Libby reservation has been a matter of continuing disagreement. The Regional Act language merely reflects these continuing and differing positions.

Montana has suffered no injury from the absence of the reservation. If a Libby reservation were computed, as was Hungry Horse's, and the two were combined, their total would be well below the amount of power BPA is presently supplying to Montana.

Until such time as Congress enacts a Libby reservation for Montana by specific language in a statute, BPA maintains that no such Libby reservation exists.

Senator BAUCUS. Moving right along, we have two more witnesses before the lunch break. Gordon Bollinger, chairman of the Montana Public Service Commission and Toni Kelley with the Northern Plains Resource Council.

STATEMENT OF GORDON BOLLINGER, CHAIRMAN, MONTANA PUBLIC SERVICE COMMISSION

Mr. BOLLINGER. For the record, my name is Gordon Bollinger. I bring you greetings from the commission and particularly from Commissioner Schneider who is our BPA specialist. He has attended the hearings and is the commissioner in charge of that part of the commission business. He will have testimony. I was very pleased to hear you say that the record will be open for the next 45 days and he will have testimony on BPA.

Senator BAUCUS. Forty-five days; did you say 45?

Mr. BOLLINGER. Forty-five, yes. The Honorable Max Baucus and members of the U.S. Senate Judiciary Committee. Thank you, Senator, for having this hearing in Montana. The Public Service Commission, who I represent today, has to intervene in many Federal cases; this does allow us to submit testimony, but when the hearings are held in Washington, D.C., which is usually the case, we are not able to send a representative to present our side because of the restraints of time, distance, and budget. If the Federal agencies are going to have hearings that impact the various States, if justice is to be carried out, the hearings must be conducted in those States or sufficient budget is going to have to be allowed so the State may have meaningful representation at the hearing.

Senator, you and your colleagues are going to have to say in no uncertain terms whether regulation is a matter for the States or for the Federal Government, and when both must regulate, the lines are going to have to be drawn so one is not played off against the other. In my opinion, it is impossible to pass a law, rule or regulation that will work satisfactorily in all of the 50 States of these United States. I firmly believe that monopolies are best regulated at the local and State level.

In general, our commission has had more success getting cooperation from the National Energy Board of Canada than any of our own Federal level regulatory agencies. We have had occasion to deal with matters before the Federal Energy Regulatory Commission, the Interstate Commerce Commission, the Federal Communications Commission and the Federal Rail Administration, as well as BPA. There are other contacts of lesser frequency on the Federal level. Overall, our commission has found that our Federal counterparts convey a superior or arrogant attitude. The privilege of Federal preemption is constantly used as a club to intimidate us on those occasions where we have marshalled fragmentary and scarce resources to present our State's point of view. We are certain that Federal regulators must pride themselves for some sort of dispassionate objective decisionmaking, whether it be in telecommunications, rail rates, or gas pricing. We are closer to the passion-generating level of American citizenry and would caution those decisionmakers to view their isolation warily.

I am convinced that if some of those industries in a monopoly position are allowed to deregulate as now being proposed, approval will eventually become an important cause of State or Federal ownership of the utility industry.

Federal preemption certainly has its place, but from our view it appears that the regulated industries are receiving undue favoritism for their pet projects at the Federal level. The railroad, which no longer considers itself a utility, with the service obligations that accompany that status, is virtually unregulated at the Federal level. We have attempted several times to meet the onerous burden of eliminating requirements on the railroad so that we may be certified to continue the regulation of intrastate rail traffic. To our disbelief, the ICC still finds our watered down proceedings unacceptable and we have not yet been certified. As a practical matter, the ratemaking responsibility of the ICC for interstate traffic amounts to nothing, since their rules require the shipper to bear the burden of proof that proposed rate levels are unreasonable, but there is not any statistical cost basis in existence for the shipper to use. Our commission is not only preempted by the ICC, we are watching helplessly while absolute nonregulation in the areas of rates and service is the order of the day.

Prior to 1976, the National Energy Board of Canada allowed a cost of service for natural gas pricing that was of considerable benefit to the State of Montana due to the fact that Montana is so close to the gas supply, right across the border in Alberta. Lo and behold the State Department of our own Federal Government deemed that this price should be one price across the entire border and consequently, the State of Montana is now subsidizing various other States in these United States. Also in the area of gas pricing, we find that the Federal Energy Regulatory Commission is looking for ways to accelerate the deregulation of prices even faster out of the public eye. Our experience has shown that the theories behind deregulation may have been wrong. The first customers out of the gas market in response to price were the big customers. They could afford to switch. This left an enormous revenue deficiency to be picked up by the other ratepayers of the utility and has been extremely painful for the poor and elderly who cannot afford to protect themselves or switch. This additional revenue requirement is in addition to the price escalations directly caused by the deregulation of gas prices. If there were some sensitivity to the real plight of the consumer, there would be less inclination at the Federal level to plunge into implementation plans that look good from an economic view on paper, but ignores the brutal reality of the marketplace. We see that reality daily. We are the most appreciative of the ratepayers' situation, yet it is our Commission that in the present legal scheme of things must raise the rates paid by consumers to cover the theoretical whimsy of the isolated Federal regulators.

An excellent recent example of our disappointment and frustration in dealing with the FERC was evidenced in the tight gas formations case involving the Bowdoin area of north central Montana. The Montana PSC was deeply and continuously involved in this case at the State level, appearing at a protestant in the State hearings. FERC established a hearing on the matter for Washington, D.C. The Montana PSC formally requested that the hearing be scheduled in Montana so that the affected States might have a real opportunity to participate. You, Senator Baucus, strongly supported that request. Nevertheless, citing budget constraints, FERC notified the Montana PSC by telephone that our request had been denied. As a result of our budget constraints, Commissioner Schneider, a petroleum engineer, was unable to appear and offer testimony on a matter of grave consequence to the Montana PSC and the affected ratepayers. Furthermore, the Montana commission urges that your testimony in this tight formation case as well as the General Accounting Office report on the actions of the minerals management service be included in the hearing record. The abuses contained therein suggest that reliance upon the Federal regulators is sorely misplaced.

Just this month, a combination gas and electric utility that serves in both inter- and intrastate service in Montana has filed with the FERC for permission to transfer a large portion of their rate base out from under PSC jurisdiction and to the purview of the FERC. This action will, in effect, leave only the retail outlets of the utility for our scrutiny, and as in the case of Great Falls Gas, make the utility we regulate a retailer only. We will, of course, be expected to pass through whatever rates and costs the FERC rules as fair by its own standards. It is quite apparent that the utilities believe they will make more money and get the best treatment from Federal regulation.

The move to a holding company format represents still another step away from utility responsibility by a very important utility in Montana. Yet our small commission is left to argue for service responsibility and fundamental case for regulation of a monopoly. Certainly, there should be someone at the Securities and Exchange Commission that is knowledgeable about the characteristics of a monopoly and the need for regulation given monopoly theory. If not at the SEC, surely the FERC. Yet, no one is standing up at the Federal level while these moves to reorganize are occurring like firecrackers around the country. It seems that Federal regulation has become an obstacle where we don't need it and is strangely absent where we need it.

In the area of telecommunications, we have been starining to be heard by joining with other States to marshal the tremendous resources that are necessary. We have been heard to a small degree by Judge Greene and would have been heard by the Congressman Wirth. Yet, we feel impotent when it comes to the FCC. The FCC's decisions are immensely influential on our situation here in Montana. In effect, we are left to simply raise the money from the ratepayer to cover the costs of the latest FCC decisions.

If deregulation of monopoly businesses is pursued by the Congress and by the Federal agencies to the detriment of the consumer, I do believe that we will have consumer revolt. Thank you for allowing me to submit this testimony.

Senator BAUCUS. Thank you very much, Gordon. That's an eloquent statement of the problems that we have with Federal preemption, FERC, ICC and other agencies as they affect Montana and other States as well. I want to at this time publicly commend you for your service on the commission. I know you're not going to stay on the commission many more months and you've provided an enormous service and contributed enormously to the consumers and to the people of the State of Montana. You will be sorely missed on the commission, and it's a loss to me personally as well as it is to many Montanans. Also I look forward to Commissioner Schneider's testimony which apparently will be coming with respect to BPA's role in Montana which is the subject of this hearing.

Mr. BOLLINGER. Thank you.

[Subsequent to the hearing, Mr. Bollinger supplied the following information:]

PUBLIC SERVICE COMMISSION 1227 11th Avenue • Helena, Montana 59601
Telephone: (406) 449-3018

Thomas J. Schneider, Commissioner
District 2

October 18, 1982

The Honorable Max Baucus
United States Senate
Washington, D. C., 20510

Dear Max:

I apologize for being so late in providing comments for the record in your inquiry concerning the Bonneville Power Administration. This letter is intended to supplement the comments of Chairman Gordon Bollinger for the Public Service Commission.

I give BPA relatively high marks for their procedural efforts to permit Montanans to have input into the various regional issues. BPA has held a large number of meetings, workshops, and hearings in Montana on elements of the Northwest Power Act and rate cases. This BPA effort is certainly in stark contrast to the FERC, FCC and ICC with whom we also have common responsibilities.

Substantively, however, the BPA performance has been disappointing. BPA has a minimal approach to conservation programs. This is particularly distressing given the clear priority of conservation in the Regional Power Act. The investor owned utilities, under strong and continuing pressure from the State regulators, are far ahead of BPA in commitment and implementation of energy conservation programs. From the newspaper accounts of your hearing, the testimony of Mark Ries of the Northwest Conservation Coalition covered this area very well.

Similarly, the BPA has adopted a very hard line on acquisition of electricity from small power production and cogeneration facilities. The Montana PSC, pursuant to Section 210 of the Public Utility Regulatory Policy Act, has adopted innovative buy-back rates for the investor owned utilities (MPC, MDU and PP&L) based upon long-run incremental costs (≈ 6¢/kwh). BPA on the other hand has taken a very short-run view of its "avoided cost" and has virtually foreclosed the purchase of renewable energy (2.5¢ - 3.0¢/kwh). BPA's approach is having a severe ripple effect as most public utility districts (PUD's), rural electric cooperatives and some investor owned utilities are keying off the BPA approach and prices.

There is substantial credible evidence that the energy conservation and renewable energy development can, indeed, satisfy the energy requirements of this region. BPA's backward attitude on both fronts is having a serious adverse effect upon these critical options in contravention of the priorities contained in the Regional Power Act. I conclude that BPA has adopted this short-run tunnel vision because of the financial impacts and political pressure related to the nuclear projects (WPPSS, etc.) to which they are unfortunately committed. This short-run mentality toward acquiring conservation and renewable energy resources is virtually guaranteed to promote another round of baseload thermal (coal/nuclear) plants in the 1990's.

It is possible (but not certain) that the upcoming Resource Plan developed by the Northwest Power Planning Council will correct the current BPA course on these issues. Nevertheless, Congressional oversight and action may be required. I applaud your efforts and concerns in this regard. I urge you to remain active and alert to this crucial issue.

Finally, I have attached a consumer letter and my response relating to the BPA rate making process. The concerns discussed therein are serious--they deal with the frustration and outrage felt by consumers in the WPPSS/BPA fiasco.

Thank you again for allowing me to submit these supplemental comments.

Very truly yours,

Tom Schneider
Thomas J. Schneider,
Commissioner

TJS:imb

Enclosures

PUBLIC SERVICE COMMISSION 1227 11th Avenue • Helena, Montana 59601
Telephone (406) 449-3[illegible]18

Thomas J. Schneider, Commissioner
District 2

October 7, 1982

Mr. Richard D. Zauft
686 Country Way
Kalispell, Montana, 59901

Dear Mr. Zauft:

Your letter of October 2, 1982, discussed the latest BPA rate increase which Flathead Electric Cooperative is flowing through to their members (customers). You described your outrage at the situation.

Let me explain the "rate process" which you are facing:

(1) The Montana Public Service Commission does not have any jurisdiction or control over the rates charged by BPA or Rural Electric Cooperatives.

(2) BPA acts in much the same manner as a "public utility". Congress has given BPA ratemaking authority in marketing federal power (from the Columbia River Basin dam system) and electricity from certain thermal (nuclear and coal) plants. Additionally, BPA is responsible to establish rates necessary to cover the costs of the Federal transmission system. In reality, they became the Regional ratemaker upon passage of the Regional Power Act in 1980.

(3) The BPA staff examines the total costs involved in these generation and transmission operations and proposes rates designed to cover those costs (which are increasing dramatically because of obligations they assumed in the WPPSS nuclear fiasco and other expensive thermal plants).

(4) The BPA administrator then must decide whether the BPA staff proposals are legitimately required. A public hearing process or BPA rate case is the way that is performed.

(5) Any interested party can intervene formally in the rate case and present evidence in opposition to the BPA rate proposal. State PSC's, large industrial customers, cooperatives, public utility districts, and private utilities (PP&L, MPC, etc.) normally intervene.

(6) Based on the evidence in the public hearing, the BPA administrator issues a final decision on the rate increases.

(7) Any party can appeal that decision to the Courts. However, unless the Administrator really does a poor job in writing a decision based on "substantial evidence", the Courts are reluctant to overturn the decision. As a practical matter, if the BPA staff presents a competent cost study, it is likely that the administrator will adopt their revenue increase and it will be extremely difficult to beat in Court. Again, the debt costs they have incurred are known and unless the contracts can be overturned somehow the costs must be paid.

(8) The Cooperative is also "unregulated" and establishes its own rates subject to consumer/member pressure. The Cooperative Board of Trustees is elected by the members and are, therefore, supposed to reflect member views.

Given that general format, I must advise you that your options are not strong nor attractive. Congress is the key to the BPA power. However, my experience in testifying before Congress in opposition to the Northwest Power Planning and Conservation Act was miserable.

Consumer groups and individual cooperatives have successfully challenged WPPSS contracts based upon imprudence or other grounds in court. However, I am frankly not optimistic about beating BPA on a strict rate case decision.

The Montana PSC did not have the necessary funds to actively intervene in the latest BPA rate case.

I know the frustration you and others must feel in this matter, and I share them. Wish I had better news.

Very truly yours,

Thomas J. Schneider,
Commissioner

TJS:imb

RICHARD D. ZAUFT
686 Country Way
Kalispell, MT 59901

RECEIVED
OCT 0 6 1982
MONT. P. S. COMMISSION

October 2, 1982

Thomas J. Schneider
Public Service Commission
Helena, MT 59601

Dear Mr. Schneider:

Enclosed you will find a notice of increase in our rates for electrical power for the coming months from our local Flathead Electric Cooperative which is 100 percent dependant on the Bonneville Power Administration.

As far back as February 9, 1982 you received a letter from me anticipating this huge and unreasonable rate increase and asking you and the Commission to protect us, "the consumers" from BPA's unjustifiable demands. It would appear that neither your Commission, the consumer nor anyone else has the power, the clout or the influence to have any control over the BPA.

At this time, the general public wants to know why this condition exists. Is the BPA a kingdom within itself which does not have to answer to anyone? Is the consumer completely defenseless and at the mercy of BPA and must accept their demands without a fight? In our form of government which is supposed to be a Democracy the public has the right to have a voice in matters of this kind which affect us deeply and not be dictated to by a government agency. We all know, as stated in your letter to Senator John Melcher dated January 4, 1980, that an existing Montana law prohibits the inclusion of construction work in progress (CWIP) in our rates. Why is it that the BPA is able to force this huge increase down our throats, especially right now when our country is at the bottom of a depression and when everyone is hurting trying to pay their bills? Inflation as you know is down to around 5% so BPA cannot use that for an excuse.

I believe that the time has come when the public must be informed and explained to as to why BPA is able to operate the way they do without giving the public a chance to vote one way or the other. I am also corresponding with our legislators on this matter. As you know, today's demands for electrical power is dropping due to other means of generating power and after this proposed rate increase you can bet your last dollar that future demands will be even less.

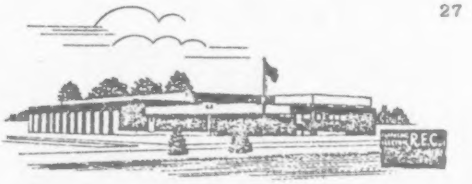
Sincerely,

Richard D. Zauft

RDZ

Flathead Electric Cooperative Inc.
510 LASALLE ROAD KALISPELL, MONTANA 59901
PHONE (406) 755/5483

27 September 1982



Dear Member;

We have received word from Bonneville Power Administration, our power supplier, that Flathead Electric Cooperative's share of BPA's overall wholesale rate increase will increase our power costs 60%. After receiving this recent increase as well as several other large rate increases from BPA during the past 2 or 3 years, our power costs now amount to almost 50% of our total operating costs.

We have had the assistance of rate specialists helping us determine what change we have to have in our retail rates in order to compensate for the wholesale power increases as well as general inflation. It has been determined that we can maintain a sound financial position by increasing our retail rates 17% effective on the bill dated November 1, 1982. This increase will carry us through the calendar year 1982 and it will be necessary to increase our rates approximately 15% on the bill dated February 1, 1983.

At this time, we anticipate that the total retail rate increase will amount to some 30%. We feel we can absorb the balance of BPA's 60% rate increase and the increase in expense caused by general inflation with this overall 30% rate increase.

Below is the comparison of our existing rate and the rate effective on the November 1, 1982 billing:

MONTHLY RATE (NEW RATE)

ENERGY:	$6.00 Basic Service Charge 3.4¢ per KWH for all KWH
DEMAND:	First 50 KW - no demand charge Over 50 KW - $3.05 per KW

MONTHLY RATE (OLD RATE)

ENERGY:	$6.00 Basic Service Charge 2.9¢ per KWH for all KWH
DEMAND:	First 50 KW - no demand charge Over 50 KW - $2.30 per KW

We realize the above is not good news; however, you may rest assured that your Board of Directors and Management are doing everything within their power to hold costs down while still maintaining the quality of service we have had in the past.

If you have any questions concerning this matter, please call or stop by the office and we will be more than happy to answer any questions you may have. Please remember, we are here to help you, "The Members."

Sincerely,

H. L. HELGESON
Manager

Senator BAUCUS. The next witness will be Toni Kelly, Northern Plains Resources Council. Toni?

STATEMENT OF TONI KELLEY, RANCHER, BOARD MEMBER, NORTHERN PLAINS RESOURCE COUNCIL

Ms. KELLEY. I would like to take the opportunity to thank you for hearing our testimony today. I would like to preface my remarks by saying that I'm incredulous that BPA would fulfill the NEPA requirements for the transmission line portion of the Colstrip project environmental impact statement without having notified one farmer or rancher in the Deer Lodge valley that they would be impacted by the transmission line. My husband Jack and I operate a ranch south of Deer Lodge and as a member of the Northern Plains Resource Council, board member, I would offer the following statement in testimony. I would like to start out by saying that this hearing is necessary because of the basic lack of concern for State's rights that BPA has exhibited in Montana. Sunday's Missoulian quoted BPA's Administrator Peter Johnson as saying that the trouble between Montana citizens and BPA is one of misunderstanding and poor communications. While I'll be the first to admit that BPA did an extremely poor job of communicating with us, I think that the problem goes deeper than that. I feel that the root of the problem lies in the fact that there are very few handles, legal or legislative, that the State or its citizens have to control such an agency. BPA can march into our State and override State laws, hold some cosmetic hearings that they call a process for public input, refuse to pay taxes and then proceed to ram a powerline through wherever they want to.

As a landowner, I have very little if anything to say about decisions made, and the compensation I receive if I am in the right-of-way makes a mockery out of appraised fair market value.

I hope that this hearing will give this committee and the rest of Congress incentive to rein in this out-of-control agency. Northern Plains Resource Council has the following suggestions for changes that could help.

No. 1, give the Northwest Power Planning Council some authority over the Bonneville Power Administration. The council could look at projects from a State and regional perspective. They would be independent of the construction process and therefore be more unbiased. Giving the council oversight for BPA's budget and the BPA's EIS process would provide for a more thorough review than is now presently being done.

No. 2, legislation that provides State and local governments with payments in lieu of taxes should be passed. Utilities should not be allowed to circumvent the payment of taxes by getting BPA to build their transmission lines. Mr. Johnson also stated in Sunday's Missoulian that it is up to Congress to pass such legislation, clearly putting the ball in your court.

No. 3, pass legislation that requires BPA to go to Congress for permission to use its power of eminent domain for each project it wishes to use it for. Abuse of the right of eminent domain is the biggest problem landowners have with BPA. Armed with the hammer of condemnation, BPA can take whatever land it wants and basically ignore landowner concerns when it is convenient for them to do so.

A bill to reform use of eminent domain by a Federal agency is badly needed and should include a provision for annual lease payments to the condemned landowner at the landowner's request.

No. 4, clear up the Federal Land Management Policies Act to insure that State siting laws are followed by agencies such as BPA. We feel that the States paying the price of the impact that Federal projects cost have the right to say where and how such projects will be built in their State. They should have the right to make siting decisions on a case-by-case basis for Federal projects. Judge Battin's recent ruling casts doubts over what the State can tell agencies like BPA in regard to locating and building the project. We feel that the FLPMA must spell out that the State has the right to make the siting decisions for Federal projects within its boundaries.

No. 5, legislation which requires that agencies such as BPA can enter into projects only at the beginning of the project should be passed. As you are well aware, BPA came into the Colstrip project long after the siting decisions for the plants was made. Many of the issues that have subsequently surfaced because of BPA's involvement, such as the taxes problem, very well could have influenced the decision to site the plants at Colstrip in the first place. We feel that something should be done to insure that Federal agencies put their cards on the table at the outset of the process to prevent the end run that the Colstrip consortium and BPA did on the State siting laws and the local governments' tax roles from happening again.

There are other issues that the Northern Plains Resource Council has concern with in regard to BPA. Many of them will be or have been raised by other witnesses today. None of them will be addressed if you leave it up to BPA. In this powerline situation, in their reluctance to aggressively pursue the conservation mandate of the Regional Act and in many other ways, BPA has demonstrated that it will not change on its own. It must be ordered to do so, and Congress is the only body with the authority to make such orders. We urge that you put some handles on BPA, for without them. State rights will continue to be railroaded into the ground. Thank you.

Senator BAUCUS. Thank you, Toni. You made some very good points, many points that I agree with, particularly giving the Northwest Power Planning Council authority over BPA. I'm working on legislation which will give the council some authority in that regard. Second, payments in lieu of taxes is an effort that I'm joining Congressman Williams in. Senator Melcher had some difficulty in the Senate getting that passed and that's the reason why it ended up with a very much watered down kind of an impact aid program. I also agree we should clear up FLPMA to insure that the State siting laws are adhered to. You speak to us from direct experience, and that helps too, and I want to again thank you and Northern Plains for your efforts in helping the people of the State of Montana in this area. Thank you very much.

Mrs. KELLEY. Thank you.

Senator BAUCUS. We'll recess the hearing now until 1:30. At 1:30 our witnesses will be Dusty Deschamps, Missoula County attorney and Mike Lindberg, Portland City commissioner. They'll be on together. The next panel will be Wilbur Anderson and Gary Mason, and then we have a few other panels after that. We'll try to conclude around 5 o'clock if we can, so I encourage everybody to be brief. We'll resume at 1:30.

[Lunch recess, 12:30 p.m.]

[Hearing resumes, 1:30 p.m.]

Senator BAUCUS. Let's resume the hearing. Our next witnesses will be Dusty Deschamps, Missoula County attorney, and Mike Lindberg, Portland City Commission, and I encourage both of you to summarize your statements. Dusty, why don't you begin.

STATEMENT OF ROBERT L. "DUSTY" DESCHAMPS III, ATTORNEY, MISSOULA COUNTY

Mr. DESCHAMPS. My name is Robert L. Deschamps. I am the Missoula County attorney. In that capacity, I'm involved directly in two lawsuits with the Bonneville Power Administration. One of them has to do with what we believe to be the unauthorized and legally deficient endeavor by BPA to construct some 197 miles of twin 500 kV powerline in Montana.

The second lawsuit is one that was recently filed wherein we're challenging the position of Bonneville Power Administration that they're limited by law from making payments to local governments in excess of the cost of actual services rendered by BPA by those governments. We believe that BPA has the authority to reimburse local governments for all effects to local governments caused by their facilities and not just the actual cost of services the local governments provide.

I've also been involved to a limited extent in the lawsuit filed by the State of Montana and the administrative proceedings that follow from that.

Since most of this litigation involves matters that occurred over the last decade, the major focus of my remarks today will be on some of those events that have occurred in the past with the hope that by looking at those past mistakes, we can take steps to correct them and make sure that they don't occur in the future. As with other speakers, I do want to say that the Bonneville Power Administration, in the last 18 months, has taken a marked change for the better, but I think, as I will note later in my remarks, these efforts on the part of BPA come too late and too little.

BPA RESPONSIVENESS TO STATE AND LOCAL GOVERNMENT CONCERNS

Addressing the questions that were given to me by the subcommittee, the first question was what the Bonneville Power Administration can do to improve its responsiveness to State government concerns. I'd like to expand on that somewhat, since I represent Missoula County and am involved not just with State government but also with local governments.

The National Environmental Policy Act, known as NEPA, specifically mandates that local government be provided an opportunity to participate early in the decisionmaking process of Federal agencies. To allow local governments this opportunity, the agency is required by the law to notify the local government of the proposed action, supply information regarding it, and then given them an oppotunity to comment on the proposal. This has been the law since 1969.

Despite this and although the Bonneville Power Administration has been involved in several Montana projects since that date, including the Colstrip project, it has only been within the last 18 months that BPA has made any effort to comply with the law by notifying and supplying information to Missoula County, and I don't know yet whether they're complying as far as other local governments go. Actually, all I can speak for is Missoula County.

For example, the Bonneville Power Administration and other Federal agencies became active in the Colstrip project at its inception in 1972 and 1973, with the Bonneville Power Administration, BLM, and Forest Service beginning studies under NEPA in 1974. By 1976, detailed environmental studies were underway studying various potential route options for the Colstrip transmission lines which were to be built by the private developers of the Colstrip project. The Federal studies were being done because the lines were to cross Federal lands and it was necessary to study under NEPA to determine whether a permit should be issued to cross those Federal lands. At the same time, in mid-1977, the Federal agencies were also involved in a project called the 20/20 study, which was a study to determine energy corridors through the northern Rocky Mountain area.

Then, in mid-1977, the Colstrip developers and BPA began earnest discussions about the possibility of BPA taking over construction of the Colstrip lines in western Montana. Apparently this came about because the private consortium was experiencing difficulty in negotiating an easement on the State-approved corridor across the Flathead Indian Reservation. It was felt, as other witnesses have testified, that it would be easier for BPA as a Federal agency to get this right-of-way.

However, by August 15, 1977, the vacant portion of the 1951 BPA easement down the Clark Fork Valley started to be discussed as a option should BPA build the line.

I wanted to stress this is in the summer of 1977 before any of the formal communications took place between the Montana Power Co. and BPA.

Despite the fact that there were earnest discussions in the summer of 1977 to have the BPA build the line down the Clark Fork Valley, and this was known by the persons who were responsible for the then ongoing NEPA process, when the public information part on that process was approved in August 1977, no plans were made to inform the public that the Federal studies were doing anything more than studying environmental impacts of private lines crossing Federal lands.

As a consequence, the public information that was disseminated concerning this environmental work merely stated that the environmental report would focus on the question of whether or not the Colstrip developers should be given an easement over Federal lands. The sole contact with local government, and this is confirmed by court testimony, was a brochure. This brochure went out in August and September 1977. This brochure said absolutely nothing that even hinted that BPA was considering and actively considering building a line down its 1951 easement. On December 2, 1977, BPA formally agreed to build the powerline from Townsend west on its vacant 1951 right-of-way. Despite this agreement in writing, no revised notice was sent out nor were the public or affected local governments advised that the entire game plan had been changed by BPA's agreement to build the powerline. A news release was issued on December 6, 1977, but I've read that again as recently as yesterday and that press release didn't say anything until the fourth paragraph of it that even suggested that BPA had in fact agreed to build the line and that was in very obscure language.

In January 1978, while of course this environmental study was going on, a fact sheet was printed and distributed to persons who were interested in the then-environmental process. This fact sheet was eight pages long. It didn't mention a word about the fact that 1 month earlier, BPA had agreed ot build these transmission lines. Instead, it says the transmission lines would interconnect at Hot Springs.

In February, 1978, another press release was issued about the environmental process. This press release was 13 paragraphs long and one sentence in the fifth paragraph stated that "A BPA build is * * * included * * * [as] * * * an alternative." It also said that there were 84 alternative corridors or segments to evaluate, suggesting that the BPA built alternative was just one of 84 alternatives.

A similar release issued in August of 1978. This was in connection with the issuing of the final impact statement known as the Transmission Environmental Report. This release didn't say anything more than the earlier one about the BPA built alternative. The TER itself, which is approximately 2¼ inches thick, has only 8 pages that discuss the BPA built alternative.

Meanwhile, even Congress was being no better informed. Although section 4(d) of the Federal Columbia River Transmission System Act requires that Congress specifically approve BPA's construction of major transmission facilies, when then BPA administrator Sterling Monroe testified before both House and Senate committees in March of 1978, he did not tell Congress what was really going on. This was about 3 or 4 months after he sent the letter to Montana Power agreeing to build the line. When he testified before both the House and the Senate, he didn't tell them that he'd made this agreement. Instead, he told Congress that BPA was "considering" building a portion of the Colstrip line, and that BPA "might" request authorization to do so in 1979.

Despite this language, shortly thereafter a bill was introduced to authorize the BPA to build transmission facilities to "integrate" the Colstrip power in the BPA transmission grid. This bill did not specify where these facilities would be located, nor the scope of the project, or indeed how much the facility would cost, although BPA's position on section 4(d) of the act is that the reason for this specific approval requirement is to let Congress know about major financial plans, but there wasn't anything in there about how much it would cost. Certainly there was nothing in the act or the legislative history that went with it that described where it was going to be or the length of it.

In October of 1978, the authorization bill was passed. Yet despite the fact that BPA agreed to build this line some 11 months earlier on a specific right-of-way and now had what BPA considered to be the necessary congressional authorization to proceed with the project, no press releases were issued, nor was any contact made with any affected State or local government despite the fact that BPA knew this would cause these governments to lose some $167 million in tax revenue over the life of the project. I might add that that figure comes from some BPA material.

Meanwhile, the TER, (transmission environmental report), was incorporated into a larger Federal Colstrip EIS. Now this document didn't enlarge at all on the previous BPA built discussion, despite the fact that when the draft Colstrip EIS was issued in January of 1979, BPA had agreed to build the line well over a year earlier and had received what it believed to be congressional authorization to do so some 4 months earlier. During this period the only public notice BPA gave on what it was really doing was a January 25, 1979 press release describing its 1980 budget. This is a five page report and starts by talking about the WPPSS nuclear plants and about page 2 or 3 it does go into BPA's plans to construct the Colstrip facility, but not until long into its release.

At the same time, BPA was issuing lots of press releases about hearings on their Colstrip EIS, scheduling hearings on that EIS, but none of those notices, none of those press releases even hinted that BPA was going to build the line or that the draft EIS discussed anything other the question of granting the Colstrip developers permits to cross Federal lands. Again, no notices were sent to affected local governments, nor were any personal contacts made with local officials to advise them of what was really going on in order to obtain their input as required by NEPA.

This situation continued unabated through the summer of 1979, with the final Colstrip EIS being issued in July of that year. Again, no notice of what the BPA was really up to in building a line. Then on September 21 of 1979, I feel the bomb dropped. A Federal decision of record was issued on the Colstrip EIS announcing precisely what BPA had agreed to nearly 22 months before; namely, that BPA would build the Colstrip line from Townsend west utilizing its vacant 1951 easement.

With this revelation, quite literally, all hell broke loose and it's still going on. Suddenly BPA was being accosted by Senators and Congressmen, State and local officials and angry hordes of citizens. BPA responded by holding countless public meetings attempting to justify its decision and mollifying people by making minor adjustments in the centerline within its chosen corridor. None of these efforts were particularly successful, and eventually the BPA, perhaps recognizing the deficiency in its earlier process, agreed to reopen first the Townsend to Garrison segment and then later the Garrison west segment. This process, I confess, has been accompanied by what I believe to be rather excellent public notice and involvement.

Unfortunately, this reopening didn't go back and correct the deficiencies that were created in the first place. The basic underlying decision that BPA would build the powerline has not been reopened. The basic decision that the routing of this powerline would be from Townsend to Garrison and then west up through the Clark Fork Valley and on through has not been altered. The supplemental process itself has focused strictly on minor relocations of the corridor itself without going to the underlying problems that we're concerned about. In short, I believe this is window dressing designed to give the appearance of compliance with the law in deference to the public concern without really changing anything.

I've indulged in this lengthy diatribe of the history of the Colstrip project to illustrate how BPA has and continues to manipulate the law to accomplish its own objectives. I don't believe there is anything particularly wrong with the national laws regarding environmental protection, but they must be obeyed. I think NEPA requires quite clearly public and local government involvement, but to be meaningful, this involvement has to be informed and it clearly wasn't in the Colstrip project. In the future BPA simply has to give, and other Federal agencies have to give, clear and accurate notice to everyone about what they are really doing rather than the mysterious blindman's bluff they're indulging in here.

The Federal Columbia River Transmission System Act must be complied with by having Congress specifically told what BPA is proposing. If this was done and is done then the public and the State and local governments will have an opportunity under NEPA to participate in the planning process at the agency level, and also at the congressional level and the political level to participate as well. And again, I believe that if the laws were simply followed as they were written, BPA would benefit too. If things had been done right starting in 1976 when BPA first began seriously considering this project, conceivably the project would be well on the way to completion. I don't think it'd be mired down in lawsuits and public controversy.

RESPONSIVENESS OF NORTHWEST POWER PLANNING COUNCIL

The second question is how might the Northwest Power Planning Council better be utilized to improve BPA's responsiveness to the State's concerns.

I'll summarize this in a few words. The way I read the powers of the Northwest Power Planning Council is that they are an advisory board. They have the right to make policy, but the problem is that BPA is not required to follow that policy. If the Northwest Power Planning Council decides something ought to be done and the administrator did not want to do it that way, all that he is required by the act to do is explain at a public hearing why he is not doing it. There's no teeth behind what that council's decision is. Therefore, there has to be some change in that law, I believe, to create some teeth and some clear authority on the part of the Council to implement the policies that they do provide. There are some valuable services that the council currently gives us. I think probably the most important is the dissemination of information. Most of us serving in the local government and I think even at the State government level certainly don't have the staff, resources or funding to ferret out the kind of information we need when dealing with agencies like the Bonneville Power Administration. The council provides the vehicle to provide that information. I'd like to compliment them on their newsletter, the Northwest Energy News, which I find to be a very valuable contribution. Going to the committee's third question which asks what can be done to improve Federal and State and local relationships for siting major facilities and what can be done to compensate the State and local governments for BPA caused expenses?

As I stressed earlier, a major improvement could be realized by simply giving timely and accurate notice to State and local governments about Federal facilities being considered within their jurisdiction. Similarly, accurate and complete descriptions must be given to

Congress when seeking approval for these projects. This gives everyone an opportunity for input at both the administrative and congressional level.

However, once the basic decision to proceed with the Federal project is made, complete cooperation by everyone is necessary for the decision as to where to site the facility. Again, this is the law now under the Federal Land Policy and Management Act, and I'd like to digress from my prepared text here a little bit. I think after listening to the other witnesses this morning, I have to agree that although I believe this is a law, the courts have not interpreted it as strongly as I think Congress intended, and I think that it does have to be strengthened in that regard so it's very clear so that the courts and Federal agencies know that Congress intended they proceed pursuant to the State Siting Act. In any event, BPA has known that this is the law in FLPMA for years and it's certainly known it since April of 1981 when the ninth circuit ruled in the *Columbia Basin* case that at a minimum Federal agencies are required to comply with the substantive provisions of the State Siting Act.

Despite this and despite their protests even today that they're cooperating and complying and everything else, BPA has fought this at every step of the proceedings. When it should have been voluntary, certainly a year ago when the ninth circuit ruled, it was only done reluctantly when ordered to by the court. Again, in relation to the Colstrip project, BPA lost itself almost a year by fighting with the State of Montana over the applicability of the Montana Siting Act when it should have simply agreed to get on with compliance with the act's substantive provisions. Once again, this is not a case, although I'm not so sure it is true, in view of the court's interpretations where there are inadequate laws at the Federal level, but rather an extreme reluctance to follow those laws by a Federal agency. I can't emphasize that too much, and it doesn't matter how many laws Congress passes. If the Federal agencies aren't going to abide by them, you might as well all go home. The only way it seems to insure compliance with these laws is to perpetually beat the agencies over the head with massive public outcry, with political pressure at the congressional level and ultimately lawsuits, and this simply should not be. They should be willing and able to follow the Federal laws without having to be forced into it time after time after time.

BPA'S SITING DECISIONS ON STATE AND LOCAL LEVEL

The next question that was asked by the committee is what steps might be taken to make BPA's siting decisions better reflect State and local government concerns. There has certainly been some discussion this morning about cooperative agreements and this sort of thing. I have an additional idea, one that Missoula County has proposed for over a year, and that is that we reactivate the 20/20 study that I alluded to earlier, the 20/20 study being the determination of energy corridors throughout the northern Rocky Mountains. For some reason, the 20/20 study itself never got beyond the draft stage. BPA also for some reason that I can't fathom refuses to go any further with this study, at least they haven't up to today, on the grounds that they have no present plans for any future East-West energy transmission and cannot conduct studies for unplanned projects. We think this is ridiculous. Whether or not they've got something on the drawing board at the moment, it makes sense to plan for what I think everybody would concede is inevitable future development of the high plains coal resources and the East-West movement of that energy. If the 20/20 study or something like that was reactivated, it would, I think, help to at least minimize some of the blood bath that's occurred in answer to the Colstrip project. Of course, if something like that is reactivated, it has to be a cooperative effort involving everybody, not just an incestuous big brother approach such as was done before where the Forest Service and BLM and BPA get together. It needs State, Federal, local and public involvement.

COMPENSATION OF STATE AND LOCAL GOVERNMENTS

The final question that the committee posed regards compensation to State and local governments for BPA caused expenses. This, of course, is a matter that's currently being worked on by the BPA pursuant to the requirements of the Northwest Power Act. BPA's draft proposal was extremely restrictive. A number of us testified that it was and offered suggestions. BPA, according to the administrator, is working on some of those and hopefully loosening it up. What the end result will be remains to be seen, however.

In addition, Missoula County has filed a lawsuit against the Bonneville Power Administration in that we believe that under the impact aid language and some other legislation BPA has the authority to compensate State and local governments for more than simply the actual cost of services rendered. We believe that the filed suit establishes that BPA can compensate local taxing jurisdictions for other costs associated with transmission facilities, such as compensation for lost property tax revenue from lands where the tax potential is either taken away or reduced because they're either burdened by an easement or adjacent to it. We don't know what BPA's position will be on this, but based on their past performance I would expect that they'll resist it.

Other possibilities that could be considered include having the utilities who use BPA facilities pay State and local governments something like payments in lieu of taxes as a condition of using BPA's facilities. There's an interesting little wrinkle to all this. Systemwide, BPA charges utilities for the use of their main grid facilities, something called the wheeling rate. That rate is a uniform rate for utilities throughout the system. There's a second rate structure that is used on what they call generation integration facilities, and generation integration facilities do not come under the wheeling rate. Generation integration facilities, as I understand it, are subject to case-by-case negotiations with the utility for what rate they will pay to use those facilities. If we look back at the authorization that BPA says the Congress gave them, Congress told BPA that they were authorized to integrate with the BPA main grid the Colstrip generation electricity. Therefore, Congress has only authorized integration facilities. Strangely, though, BPA has only treated as integration facilities for rate purposes that stretch from Townsend to Garrison. Everything west of Garrison has been agreed with the utilities to be treated under the wheeling rate for main grid facilities.

Clearly BPA has misclassified that stretch of the line west of Garrison as main grid, when Congress only authorized integration facilities, and therefore I believe that BPA should, in fact perhaps legally must, reopen those contracts with the Colstrip developers. When they do that, I think it's entirely appropriate for BPA to come again and ask those utilities who are using those facilities to pay the local governments something like payments in lieu of taxes as one of the conditions for the contracts to use those facilities.

Of course, another possibility would be a renewed congressional effort to require payments in lieu of taxes. This isn't anything new. The Bonneville Power Administration has in the past, and I believe may still be paying payments in lieu of taxes on everything associated with Grand Coulee, and certainly other Federal energy agencies such as the TVA make payments to local governments. The TVA scheme is that they send back the State and local governments a percentage of the receipts from the power, but that would be another possibility instead of payments in lieu of taxes. In any event, BPA should not be allowed to escape such requirements on the grounds it's unheard of or that ratepayers won't stand for it. They have in the past and I don't see any reason why they shouldn't in the future.

I'd like to thank the committee, and particularly you, Senator Baucus, for holding this hearing and giving me an opportunity to speak, and at this time I'd be happy to attempt to answer any questions.

Senator **Baucus**. Thank you, Dusty, particularly for documenting the lack of notice by BPA through the years. We all know it's been the case. I appreciate your bringing together in one very comprehensive statement the long catalog of BPA's failure, at least in the early stages, to sufficiently notifying Congress, States, and affected citizens of its intentions and its actions.

My first question goes to your view of whether it would compromise your litigation on payments in lieu of taxes to have legislation introduced in Congress to clarify this issue and have it state crystal clear that BPA not only has the authority but must make payments in lieu of taxes?

Mr. **Deschamps**. Well, first of all let me make it perfectly clear. We are not seeking payments in lieu of taxes per se. We are seeking some kind of additional payments to State and local governments as a condition to obtaining right-of-way through our area, maybe as an adjunct to condemnation, but we're not flat out asking total payments in lieu of taxes, and in that regard then I see that it would create absolutely no problem at all if you introduce legislation like that.

Senator **Baucus**. Why didn't you seek payments in lieu of taxes in your suit?

Mr. **Deschamps**. Well, because I think that we've got some problems with that. As I understand it, Congressman Williams introduced legislation to make BPA do exactly that as part of the Northwest Power Act. His proposal was defeated, and I think in the courtroom we would have to eat that because it displays that if Congress really intended that BPA make full payments in lieu of taxes then it wouldn't have had any problem passing legislation that said precisely that. When Congress killed that legislation, that's pretty strong evidence that Congress really didn't intend for them to go quite that far, so that's the reason we didn't go for the whole ball of wax.

Senator BAUCUS. So as far as you're concerned, you would not object nor do you think it would jeopardize your action at all if we were to introduce legislation again similar to the bill that Congressman Williams introduced?

Mr. DESCHAMPS. Not at all, no.

Senator BAUCUS. Would you support legislation to require BPA's draft budget to be supplied to the Regional Power Council for public hearings?

Mr. DESCHAMPS. Yes, I certainly would.

Senator BAUCUS. Do you have any particular language for your recommendation that the council be empowered somehow to halt runaway BPA activities?

Mr. DESCHAMPS. No; I haven't drafted any particular language. I'd have to think about that, but I think we can at least make some suggestions.

Senator BAUCUS. I was struck with your statement that often Federal agencies don't seem to follow the law, particularly as it applies to Federal-State relations. Part of the problem obviously is that some of those laws as they apply in particular instances are ambiguous. I'm wondering whether you've given any thought to Congress providing some remedies when a Federal agency refuses to comply with a Federal law which defines a Federal-State relationship. I think the usual case is the statute just basically empowers or directs the Federal agency to take or not to take certain action and it's silent with respect to any remedies if the Federal agency refuses to do so. It seems to me that if there were some remedies it might cause a Federal agency to think twice before it undertakes an action which arguably is in contravention of a Federal statute. I'm wondering if you've given any thought to any kind of remedies.

Mr. DESCHAMPS. Well, as a matter of fact, yes, I have, because that is one of the issues that's involved peripherally, I guess, in our lawsuit now pending before the Ninth Circuit Court of Appeals. We've asked for a preliminary injunction; that's the normal remedy that's invoked on the way to a permanent injunction when a Federal law is violated by one of the Federal agencies. Our position on appeal is that the district court abused its discretion in not granting our request for a preliminary injunction because we did show, we think, that BPA violated the law, that they were acting without authorization, and that we have an irreparable injury as a result of that. The district court didn't see it that way, and BPA didn't see it that way either and they're arguing that we don't have grounds for a preliminary injunction. It was raised in a recent U.S. Supreme Court case, *Weinberger* v. *Romero-Barcelo*, 50 L.W. 4434 (April 27, 1982), under the Federal Water Pollution Control Act which does indeed provide for remedies in addition to injunctions; that is, fines or compliance orders.

Senator BAUCUS. You mean the statute itself provides remedies?

Mr. DESCHAMPS. Yes; and the U.S. Supreme Court then said where the statute by itself has provided other remedies besides the typical injunction, then the Court may be prohibited from the issuing of the premilinary injunction since other remedies are available. So it's something that requires careful treading, I think, before you leap into it because you might actually cause in the long haul more difficulty for us than good if you create a bunch of statutory remedies, and the Court will say well, we don't have to enjoin this. You can get money from them or send them all to jail or something. The project is built and—as I say, it shouldn't be, but it's a lot more complex than it appears at first blush.

Senator BAUCUS. Do you anticipate or see any constitutional obstacles if Congress were to require the Council, for example, to review BPA's budget or empower it to directly affect BPA decisions?

Mr. DESCHAMPS. I think there are potentially some constitutional problems and again it has to do with the States' rights, and the way the Council is set up right now you've got State Governors appointing the personnel on the Council, and that may be abdicating to the State something that's a Federal responsibility. I'm not sure that's true, that that's a constitutional—I think it would be worth a try, and I don't know if there's anything specifically in the Constitution that prohibits Congress from creating some kind of a joint Federal-State control over something like this. I think it's not certainly clearly unconstitutional.

Senator BAUCUS. Does the old 20/20 study that you referred to earlier relate at all to the interagency corridor study that Mr. Berry submitted this morning?

Mr. DESCHAMPS. I'm not familiar with the phraseology of the interagency corridor study. There was a study, an abbreviated study of what the transmission environmental authorities call the corridor option study. I'm not familiar with that. It might be the same thing. I don't know.

Senator BAUCUS. OK, thank you very much, Dusty. We appreciate your presence today.

Mr. DESCHAMPS. Thank you.

[The prepared statement of Mr. Deschamps follows:]

PREPARED STATEMENT OF ROBERT L. DESCHAMPS III

My name is Robert L. Deschamps III. I am the Missoula County Attorney and in this capacity I am currently involved in two major lawsuits with the BPA. One has to do with what Missoula County and other local governments as well as various environmental groups and individuals believe to be an unauthorized and legally deficient endeavor by the BPA to construct some 197 miles of twin 500 kV powerlines across the state of Montana from Townsend west.

The other suit challenges the position of BPA that they are limited by law from making payments to local governments in excess of the cost of actual services rendered to BPA by those governments. We believe that BPA has the authority to reimburse local governments for all effects to local governments caused by their facilities, not just for the actual cost of provided services.

I have also been involved, to a limited extent, with the lawsuit and state administrative proceedings between the State of Montana and BPA wherein the State is seeking to require BPA to comply with certain requirements of the state facility siting act.

Because much of this litigation concerns events which have occurred over the last decade, many of my observations at this hearing will concern my reaction to the way things were done in the past, but which might well be handled differently if done today or tomorrow. In this connection, the last year or so has seen a marked change for the better in the ways BPA interrelates with State and local governments. Nevertheless, as I will note later, some of this interrelationship comes too late and is too little. Other cooperation seems to be the result of being forced by court order. Nevertheless, my remarks today are thus aimed at the mistakes of the past so that they will not be repeated, as well as to encourage BPA to continue and expand upon the direction they appear to be starting to be going in.

I.

The committee's first question asks what BPA can do to improve its responsiveness to state government concerns. I would like to take the liberty of expanding this question to cover not only state concerns but also the concerns of local governments.

The National Environmental Policy Act, known as "NEPA", specifically mandates that local governments be provided the opportunity to participate early in the decision making process of federal agencies considering projects that significantly effect the environment. To allow local governments this opportunity, the agency is required to notify the local government of the proposed action, supply information regarding it, and give them an opportunity to comment on the proposal. This has been the law since 1969.

Despite this, and although the BPA has been involved in several Montana projects since that date, including the Colstrip transmission project, it has only been within the last 18 months that BPA has made any effort to comply with the law by notifying and supplying information to Missoula County. I don't know whether they are yet complying with the law as far as other governments are concerned.

For example, the BPA and other Federal agencies became active in the Colstrip project at its inception, in 1972 & 1973, with BPA and Forest Service powerline routing discussions taking place as early as March 1973. They began studying it for NEPA purposes in 1974. By 1976 detailed environmental studies were underway studying various potential route options for the Colstrip transmission lines, which were to be built by the private developers of the Colstrip project. The federal studies were being done because these lines were to cross federal lands. At the same time, in mid 1977, the federal agencies were also heavily involved in the so-called 20-20 study", which was an analysis of potential east-west energy corridors across the Northern Rocky Mountains.

Then, in mid-1977, the Colstrip developers and BPA began earnest discussions about the possibility of BPA taking over the construction of the Colstrip lines through Western Montana. Apparently this came about because the private consortium was experiencing difficulty negotiating an easement on the state approved corridor where it crossed the Flathead Indian Reservation, and it was felt that the BPA, as a federal agency, would have an easier time doing it.

However, by August 15, 1977, the vacant portion of a 1951 BPA easement down the Clark Fork Valley started to be discussed as an option should the BPA build the lines.

Despite the fact that earnest discussions were underway to have the BPA build the lines down the Clark Fork Valley on the 1951 easement, and this was known by the persons responsible for the federal environmental studies, when the Transmission Environmental Report (TER) public information plan was approved in August, 1977, no plans were made to inform the public that the federal studies were to do anything more than study the environmental impacts of the private line crossing federal lands.

As a consequence, the public information that was disseminated concerning the TER work merely stated that the environmental report would focus on the question of whether or not the Colstrip developers would be given an easement over federal lands. The sole contact with local governments was the mailing of a brochure describing this activity. Absolutely nothing was said that even hinted that BPA was actively considering building the lines on its 1951 easement. Instead the entire focus was on the Colstrip developers building the line on its state-approved corridor.

On December 2, 1977, BPA formally agreed to build the powerline from Townsend west, on its vacant 1951 right-of-way. Despite this, no revised notices were sent out, nor were the public or affected local governments advised that the entire game plan was changed by the BPA's agreement to build the powerline. A news release was issued on December 6, 1977 regarding the December 2 agreement, but the real meat of the agreement, that BPA would build the line, was buried in obscure language in the 4th paragraph of the release.

A Janaury, 1978 "Fact Sheet," 8 pages long, distributed to persons interested in the ongoing TER process does not mention even a possibility that BPA would build the lines - instead it says the transmission lines would interconnect at Hot Springs.

In February, 1978 another press release was issued about the TER process. One sentence in the 5th paragraph of the 13 paragraph release states that "A BPA build is ... included ... [as] ... an alternative..." However, the release also states that 84 corridor segment alternatives are being studied, suggesting the BPA proposal was only one of 84 alternatives.

A similar release was issued in August, 1978. This release was issued to announce the completion of the TER report, which is approximately 2 1/4 inches thick. Of this, only eight pages discussed the BPA build alternative.

Meanwhile, even Congress was being no better informed that the general public or state and local governments. Although Section 4(d) of the Federal Columbia River Transmission System Act requires that Congress specifically approve BPA construction of major transmission facilities when then BPA Administrator Sterling Munro testified before both House and Senate Committees in March, 1978, he did not tell them that 3 months earlier he had agreed to build the 200 miles powerline for the Colstrip developers. Instead he told Congress that BPA was "considering" building a portion of the Colstrip lines, and that BPA "might" request authorization to do so in 1979.

Despite this, shortly thereafter a bill was introduced to authorize BPA to build transmission facilities to "integrate" the Colstrip power into the BPA transmission grid. The bill did not specify where these facilities would be located, nor the scope of the project, or indeed how much the facilities would cost, although ostensibly fiscal control was a major reason for the requirement that Congress retains the power to authorize such construction.

In October, 1978 the authorization bill was passed. Yet, despite the fact that BPA had agreed to build the lines, on a specific right of way, nearly a year earlier, and now had what BPA considered to be the necessary Congressional authorization to proceed with the project, no press releases were issued, nor was any contact made with affected state and local governments, despite the fact that BPA knew this would cause these governments to lose some 167 million dollars in tax revenue.

Meanwhile, the TER was incorporated into a larger Federal Colstrip EIS. This document did not enlarge upon the 8 page discussion of the BPA build alternative, despite the fact that when the draft Colstrip EIS was issued in January, 1979, BPA had agreed to build the line well over a year ealier and had received what it believed to be Congressional authorization to do so some 4 months earlier.

During this period, the only public notice that the BPA gave on what was really going on was a January 25, 1979 press release describing its 1980 budget. This 5 page report starts out talking about BPA involvement in the WPPSS nuclear plants, and does not discuss the BPA's plans to construct the Colstrip facilities until well into the release.

Of course, during this time press releases were being issued about the availability of the draft Colstrip EIS and scheduling hearings on it. None of these notices even hinted that BPA was going to build the lines, or that the draft EIS discussed anything other than the question of granting the Colstrip developers permits to cross federal lands. Again, no notices were sent to affected local governments, nor were any personal contacts made with local officials to advise them of what was going on or to obtain their input as required by NEPA.

This situation continued unabated through the summer of 1979, with the Final Colstrip EIS being issued in July of that year. Again, no notice that BPA was building the lines and no contact with affected governments.

Then, on September 21, 1979 the bomb dropped. A federal record of decision was issued on the Colstrip EIS, announcing precisely what BPA had agreed to nearly 22 months before, namely that BPA would build the Colstrip lines from Townsend west, utilizing its vacant 1951 easement.

With this revelation, quite literally all hell broke loose. Suddenly, BPA was being accosted by Senators and Congressmen, State and local officials, and angry hordes of citizens. BPA responded by holding countless public meetings attempting to justify its decision and to mollify people by making minor adjustments of the centerline within its choosen corridor.

None of these efforts were particularly successful, and eventually BPA, perhaps recognizing the errors it had made earlier, agreed to reopen its decisions on the Townsend-Garrison segment, and later on the Garrison west segment. This supplemental process was accompanied by the rather excellent public involvement procedures I alluded to at the opening.

Unfortunately, the reopening was considerably less than a full re-evaluation of the Colstrip transmission question. The basic underlying decisions that BPA would build the lines and that this construction would go from Townsend to Garrison, and then west down the Clark Fork Valley remain intact. The supplemental process has only addressed relatively minor adjustments in the corridor itself. In short, window dressing designed to give the appearance of compliance with the law and deference for public concerns, without really changing anything.

I have indulged in this lengthy diatribe to illustrate how the BPA has and continues to manipulate the law to accomplish its own objectives. There is nothing wrong with the existing laws, but they must be obeyed. NEPA requires public and local government involvement. But to be meaningful, this involvment must be informed, and clearly it was not in the Colstrip project. In the future BPA and other federal agencies must give clear notice and accurate to everyone about what they are really doing, rather than the mysterious blind-man's bluff indulged in here. The Federal Columbia River Transmission Systems Act must be complied with by having Congress specifically told what BPA is proposing. If this is done, then the public and state and local government will have a fair opportunity to participate in the planning process at both the agency and Congression level. And, BPA will benefit too. If things had been right back in 1976 when BPA began to first seriously consider this project, it might well be done by now instead of being mired in lawsuits and public controversy.

II.

The second question is how might the NW Power Planning Council better be utilized to improve BPA's responsiveness to state concerns?

It appears the Northwest Power Act does not give any direct authority over BPA to the Council. The Council's primary task is preparing and adopting a regional conservation and electric power plan and a program to protect, mitigate and enhance fish and wildlife. The authorship of these two plans seems to be the only substantial responsibility and power of the Council.

After the regional conservation and electric power plan is submitted to the Administrator, the Council has no authority over the Administrator or BPA. The Council may only request the Administrator to take an action under the plan but has no means for seeing that the plan is implemented.

Both the BPA Administrator and the Council are bound by the Act to provide for participation of states, local governments, consumers, customers, users and the public. The difficulty is that the Council has no direct authority to require that BPA be more responsive to state concerns.

Since it is clear the Council cannot directly improve BPA's responsiveness, what can the Council do? Essentially the Council is a political creature, appointed to represent the interests of the states involved and through this political role can affect BPA. The Council can do several things to indirectly move BPA into more responsiveness. The first, is by setting a good example. If the Council takes its own responsibilities seriously and has a model planning and participation program, it will make BPA look bad by contrast and BPA will be more likely to alter its program for the better. The disparity between the participation plans will put some pressure on BPA to improve.

Secondly, the Council does have authority and money to obtain and disseminate information. The Council's newletter Northwest Energy News is a valuable contribution. In a very complex field, the Council's ability to get up-to-date and pertinent information is potentially very useful. The states, local governments and public cannot, with their limited time, staff and money, ferret out the essential facts in a constantly changing field. Without such data, they are always at a severe disadvantage in commenting on a regional plan or on actions taken by BPA. They need facts, and the Council is in a special position to get those facts and get them out to people. Dissemination of essential data, such as forecasts of demand and supply, can assist the states to effectively challenge BPA's actions and participate in decision making process.

Third, the Council must bring political pressure to bear when the Administrator fails to be responsible to the states' concerns. The Act sets up the Council to make policy. The only way for the Council to see its policy is implemented is to use political channels. Since the Administrator does not answer to Council, but to the Secretary the Council must exert its force at the Secretary and Congressional level.

In summary, the Council can improve BPA's responsiveness to state concerns by setting a good example, supplying states with up-to-date information, and by mobilizing political forces to exert pressure on BPA when it fails to follow the requirements of the Act.

You have also asked what changes in law, if any, might enhance the Council's ability to make BPA more responsive?

The answer is accountability. At present the Council has no direct avenue to affect BPA's actions. If the Council does not feel BPA is adequately responsive to state concerns, it may recommend action to the Administrator but the Administrator need do no more than give a written response or informal hearing explaining why he has decided not to take action. Congress has told the Council to make the policy and told the Administrator to carry the policy out. Unless Congress wants itself or the courts to be intermediaries, it must give to the Council some way of ensuring the policy is implemented. There needs to be some mechanism by which the Council can call a halt to actions not in compliance with the act and the regional plan. In that way, if the Council feels BPA is not being responsive to state concerns, the Council can stop the action and send BPA back to start.

III.

The committee's third question asks that I address what can be done to improve the federal-state-local relationship for siting major federal facilities, and what can be done to compensate state and local governments for BPA-caused expenses.

As I stressed earlier, a major improvement would be realized by simply giving timely and accurate notice to state and local governments about federal facilities being considered within their jurisdictions. Similarly, accurate and complete descriptions to Congress, when seeking approval, is necessary. This gives everyone an opportunity for input at both the administrative and Congressional level.

Once the basic decision to proceed with a federal project is made, complete cooperation by everyone is necessary for the decision on where to site the facility. Again, this is the law now under the Federal Land Policy and Management Act (FLPMA). BPA and other federal agencies have known this for years, and certainly since April of 1981 when the 9th Circuit ruled that, at a minimum, federal agencies were required to comply with the substantive provisions of state siting acts.

Despite this, BPA has fought complying with state siting acts at every step. What it should have done voluntarily, it has only done reluctantly when ordered to by the courts. Again, in connection with the Colstrip project, BPA lost itslef almost a year fighting with the state of Montana over the applicability of the Montana siting act, when it should have simply agreed to get on with compliance with that act's substantive provisions.

Once again, it is not a case where there are inadequate laws at the federal level, but rather an extreme reluctance to follow those laws by the federal agencies. It seems that the only way to insure compliance is to perpetually beat the agencies over the head with massive public outcry, political pressure at the Congressional level, and, ultimately, lawsuits. This simply should not be.

A second sub-question raised by the committee is what steps might be taken to make BPA's siting decisions better reflect state and local government concerns. In addition to the foregoing, Missoula County strongly urges a joint federal-state-local return to the 20-20 study I alluded to earlier. This study, started in the mid-1970s, was an attempt by several federal agencies to identify east-west energy corridors through the Northern Rocky Mountains. For some reason, this study never went further than the draft stage. BPA refuses to go any further at this point on the ground that "they have no present plans for any future east-west energy transmission, and cannot conduct studies for unplanned projects."

Missoula County believes this is ridiculous. Whether or not any specific projects are on the drawing board, it makes sense to plan now for the inevitable future development of the high plains Coal reserves and the best way to move the energy from its source to the areas of use, including the West Coast. Planning now will avoid or at least minimize the bloodbath associated with the Colstrip project. In addition, of course, any such study must be a cooperative effort involving everyone concerned, and not just the incestuous big brother approach of having selected federal employees only conduct the study.

The final question posed regards compensation to state and local governments for BPA caused expenses. This, of course, is a matter that is presently being worked on by BPA pursuant to the impact aid requirement of the Northwest Power Act. BPA's draft proposal was extremely restrictive, but I understand BPA is working on loosening up the proposal. What the end result will be remains to be seen.

In addition, Missoula County believes BPA has the authority, under the impact aid language and other legislation, to compensate state and local governments for more than simply the actual costs of services rendered specifically to BPA. We believe, and have filed suit to establish, that BPA can compensate local taxing jurisdictions for other costs associated with transmission facilities such as compensation for lost property tax revenue from lands whose tax potential is diminished because of the power lines' existence over or near them. BPA has not answered our complaint, so its position is unknown. Based on past performance, however, it is likely BPA will resist.

Other possibilities include having utilities who use BPA facilities pay State and local governments something like payments in lieu of taxes as a condition of using the BPA's facilities.

System-wide this would require an extensive revision of the BPA's rate structure, and would probably generate considerable opposition, especially on the West Coast. This is because the use of main grid facilities is charged at the so-called "wheeling rate" which is uniform throughout the region. However, a different rate schedule, worked out on a case-by-case basis, applies to so-called "generation integration" facilities.

In Montana, for some reason, the Townsend-Garrison segment is classified as generation integration for rate purposes. The proposed facilities west of Garrison have been classified as main grid, even though Congress only authorized integration facilities. Obviously BPA has mis-classified the facilities west of Garrison and should reopen their contracts for both segments and require the Colstrip consortium, under generation integration rates, to pay local governments something in lieu of the taxes the consortium would have had to pay had it built the lines as originally proposed.

Another possibility would be a renewed Congressional effort to require payments in lieu of taxes. This is nothing new. Many federal agencies currently make such payments. Even BPA is required to make payments in lieu of taxes in connection with the Grand Coulee project. Other federal energy agencies, such as the TVA, distribute a percentage of its receipts back to state and local governments. BPA should not be allowed to escape such requirements on the grounds that its unheard of or that the rate payers won't stand for it.

CONCLUSION

I would like to thank the committee and Senator Max Baucus for holding this hearing and giving me the opportunity to speak. At this time I will be happy to try to answer any questions.

Senator BAUCUS. The next witness is Mike Lindberg who's a Portland City commissioner.

STATEMENT OF MIKE LINDBERG, COMMISSIONER, PORTLAND, OREG.

Mr. LINDBERG. Senator Baucus, I appreciate——

Senator BAUCUS. I very appreciate your coming all the way from Portland to our great State.

Mr. LINDBERG. This is a very hospitable group. This is my first visit to your State and it's not only beautiful, but I've had a chance to visit with some of your constituents you have here and I've enjoyed it very much. I had been told that you were a Senator that understood the necessity of regional cooperation and recognized the interdependence in terms of the way we use our natural resources, and I think that's why really, I particularly appreciate the opportunity to testify today, because I think particularly in this area of energy, we really, even though we're hundreds and hundreds of miles apart, have some similar interests and should have a close relationship, so I hope this is a start of a continuing relationship.

Senator BAUCUS. I appreciate that, because you're under quite a burden this morning. You know the old saying, the greater the distance the witness comes, the more of an expert he is. So we're waiting for your pearls of wisdom here.

Mr. LINDBERG. OK; OK. It's also interesting to come at the same time you're dealing with issues of BPA and local government to hear the controversies about transmission lines which connect our two States. I know that the more we can move ahead with a lot of our programs in the State of Oregon to conserve energy, for example, then maybe the fewer transmission lines that you'll need to run between your coal plants in the Pacific Northwest.

I might mention before starting my testimony that the city or Portland has been actively involved in the energy field for several years. In fact in 1979 the city adopted an energy conservation policy which received nationwide recognition and one of the cornerstones of that policy was the conclusion that we could actually cut our energy consumption in the city of Portland by around one third by the year 1995 if we took a series of actions. Some of those actions are dependent upon cooperation from the Federal Government and many of those actions would require a good implementation of the Regional Power Act, so that's why I was particularly anxious to come over today.

The 370,000 citizens that I represent in the city of Portland feel strongly that we deserve the energy conservation benefits that Congress intended us to have under the Regional Power Act and we're convinced that conservation and the renewable resource priorities of the act will help better to keep the electricity rates down, but will create jobs and contribute to the stabilization of the local economy, which is so sorely needed at this particular point in time. I might mention too that not only am I representing the citizens of the city of Portland, but I am on the executive committee of the State League of Cities and the views that I'm expressing here today represent the cities throughout the State of Oregon. The fact being known that I was coming over here, I've had a number of cities contact the State League of Cities and a number of smaller cities the size of around

10,000 saying that they share the views and have a lot of problems that we do.

Laced throughout the Northwest Regional Power Act there are statements about the role of local governments and how important they are. For example, the local governments are recognized for their role in policy development connected with the act in planning as mechanisms for accomplishing conservation measures and as generators of electrical energy. The BPA administrator is expected to provide in the act "technical and financial assistance" to both his customers and to "governmental authorities" to encourage conservation and the programs of "States or political subdivisions thereof." This language, incidentally, was intentionally put into the act partially due to the lobbying efforts of the cities of Seattle and Portland. We had very clearly in mind what they thought we would get out of the act once it was passed.

Furthermore, the act directs the administrator to "make maximum practicable use of customers and local entities capable of administering and carrying out" conservation program measures or resource acquisitions. There was no doubt in reading this that Congress had no trouble recognizing the asset that local government could be in implementing the act. Unfortunately, BPA has been slow to reach the same conclusion about the value of local governments. One month after the act passed, BPA quickly submitted to Congress an amended budget for fiscal year 1981. Of $48 million added for energy conservation and renewable resources, only $500,000 was to be spread across the region for financial and technical assistance to local governments. As a matter of fact, if we look at the spread of the $500,000 across the four States to all of the localities, it really is not that much of an impact and we don't think the program has been very effective.

During the first series of meetings on local government financial assistance, BPA policies toward the consumers in the region became distinct and separate from their policies toward traditional utility customers. Despite clear language in the act directing BPA to cooperate with governmental authorities and encourage maximum cost-effective conservation, there are three shortcomings that we have seen in BPA's program offerings. First is that the programs are disproportionately available only to and administered only by BPA utility customers. The second shortcoming is that they're further restricted to these entities served by BPA utility customers who have signed power sales agreements, which has held us up from implementing conservation measures in the Pacific Northwest. And the third shortcoming is the program offerings are subject to a price ceiling of a maximum of 3.5 cents per kilowatt hour for conservation while BPA pays 6 to 8 cents per kilowatt hour for further power from WPPSS nuclear powerplants 1, 2, and 3, whether or not they are ever completed and on line.

Let me explain the impact of those particular shortcomings on local governments. First in regard to preference treatment for BPA utility customers. The overwhelming majority of BPA conservation dollars have been allocated for five conservation programs that are administered by their own customer utilities, and unfortunately if you look at the total conservation budget, only 4 percent of it in the fiscal year

1982 conservation budget was directed toward State and local governments, Indian tribes or other governmental entities.

We feel that this 4 percent really is not an effective use of resources and that there were many cities such as the city of Portland which have been involved in conservation efforts for sometime and with some financial assistance, we could put programs on line directly within a matter of weeks or months, and later on in my presentation I will give you some examples of the kind of money we feel we could have saved if there would have been a more expeditious response to the passing of the act. The second shortcoming has been probably the need for power sales agreements to be signed between BPA and the utilities they serve, and they have said that areas that do not have utilities who have signed those requirements contracts basically have not been eligible to participate in the program. This exclusionary policy has unnecessarily delayed conservation opportunities for local governments in the region.

BPA offered all utilities in the region these power sales agreements one year ago. Portland's two investor owned utilities waited to just days before now, just last week, before signing. There are some problems with this. The first is that all the time the clock was ticking and energy was being wasted during this entire period. A specific example would have been if we would have had access to funds to make a conversion of our street lighting system to high pressure sodium vapor, we could have already saved the citizens of Portland alone $500,000 per year. I think the other thing I would caution people who are following the act, the signing of these power sales agreements which has now occurred does not necessarily mean that conservation will follow. I think in terms of the signing of these agreements, it's been a long courtship, a nice wedding, but we don't know if it will be a good marriage because we are not sure exactly what will stem out of these agreements in terms of what we pass on to consumers. The third shortcoming of the BPA program offerings has been the price ceiling for conservation.

This spring Bonneville released its first demand forecast, predicting a 1.7-percent average annual electric growth for the next 20 years. BPA also projected that this slower growth rate in energy demand would result in surpluses of as much as 2,200 average megawatts over the next 10 years, so that there's several significant BPA policy decisions that have resulted from this forecast, that they have pulled back and limited their conservation programs, and just as important, BPA has adjusted its cost-effectiveness formula for conservation. Basically what they said is that there is not as great a value for conservation in times of surplus.

The city of Portland has become deeply involved in this issue and has hired consultants that have, frankly, I think, challenged the conclusions of BPA's policymakers and we do believe that the value of conservation has been tremendously understated. In addition to that, even the current effort on the part of BPA does not approach even a 35-mill level conservation. Of BPA's program costs 87 percent are for killowatt hours acquired at 27 miles or less. This level of effort might be defensible if BPA could convincingly show that no more savings were practicable. But the case is difficult to make so long as

BPA limits its efforts to its own programs and those through its utility customers and they are missing, I think, dozens of good opportunities where local governments have come up with programs that I think would be very cost-effective. Another example of this deemphasis on conservation is the 60-percent BPA rate hike which goes into effect October 1 and further substantiates its reversed priorities.

Of the rate increase, 70 percent is for WPPSS 1, 2, 3, and 5 percent is for conservation. So in conclusion, Senator Baucus, I have some recommendations that we think would be appropriate to be pursued. Some of these could be pursued on the part of Senators and Congressmen, others we're dealing with the Northwest Regional Power Council. We basically think though that BPA ought to take the opportunity of the Regional Power Act passage to broaden its audience and assume new regional responsibilities. We do believe, frankly, that BPA has kept its perspectives narrow and taken the slowest, most cautious route possible toward conervation in general and local governments in particular.

The following eight suggestions are ways that we think Bonneville could improve its relationships with local governments in the region and meet the congressional intent of the law. The first would be to actively and aggressively seek conservation opportunities within the structures of local governments, as I've mentioned; an example being working with building codes and zoning mechanisms. Two would be to tap the electric energy efficiency improvements that are within the purview of local governments. We have many oppportunities right now to save a tremendous amount of energy, whether it be in street lighting or waste water treatment plants. However, we need the capital that is available—could be available to BPA to proceed with these programs. Three, BPA should remove restrictions from local government program participation.

Four, BPA should establish a flexible value for conservation and other resource acquisitions, rather than hang on to what we think is an unwise and arbitrary 35 mills. Five, BPA should provide staff training and seek to hire staff with experience and familiarity on local government energy capabilities. Six, BPA should offer energy conservation programs, both now and in the future, which capitalize on local government accomplishments and abilities. BPA could support decentralized, community-based marketing programs, tapping local governments, community groups, neighborhood associations, community based organizations. Eventually I think a lot of our energy problems will be solved not by one single approach, but by involving millions of our citizens in taking a collective action. Seven, BPA should step up its overall conservation efforts on their own. Eight, the policies and programs should be viewed as short-term measures until the Power Council's regional plan is adopted and the real test for effectiveness of BPA, local governments and conservation will be taken when the council's plan is implemented.

I was interested, Senator Baucus, in your comment about the possibility of introducing legislation which would increase the authority of the Regional Power Council in its relationships with BPA. If that's something that you pursue, we in Portland would be most anxious to participate with you in developing legislation or supporting specific legislation when you bring it to Congress. Thank you for the opportunity to present these comments and I'd be glad to answer any questions that you have.

Senator BAUCUS. Thank you very much, Mike. I think the value of your testimony and your suggestions certainly measure up to the distance which you traveled to come here. We appreciate it very much. I'll also submit some of your suggestions to BPA and ask for a detailed reply to them. That will be very interesting and very helpful to us. You've already answered one of my questions and that's whether you'd support legislation that required BPA to submit its draft budget to the Congress. Is that something you would support?

Mr. LINDBERG. Yes, and I have been concerned for the last couple of years over the issue of who really is overseeing BPA. I guess—I personally attended the congressional budget hearings for BPA last time, and I would say frankly I think in the past maybe that Congress itself has not been able to get into as much depth as I would have liked in terms of the BPA budget. If I look at the different alternative ways in which that might work better, one of the ideas would be to look at the role of the Regional Power Council in terms of overseeing the BPA budget or providing input into congressional hearings.

Senator BAUCUS. Why do you think BPA has not been as responsive as it should be to local governments; what's the reason for that?

Mr. LINDBERG. I think primarily because of the fact BPA is a large organizations that has worked with the same objectives and the same procedures for several decades, and suddenly with the Regional Power Act passage they're presented with a whole series of very real challenges. Just one of those challenges was to start working with local governments, and BPA was very direct with us in saying that they didn't see how they could work with 3,000 different local entities within the region that they serve. They didn't think that would be a manageable kind of thing to take on with the other challenges that they had. I can understand that point of view. On the other hand, I thought there were a series of local jurisdictions who had made so much progress and could make such a contribution in the area of conservation, for example, that I felt that BPA could have selectively started working with these jurisdictions, so I think one of the reasons they didn't simply was because of the number of jurisdictions to work with, the complexity of setting up mechanisms, the anticipated competition for BPA funding, that they would have to decide who to give their money to.

Senator BAUCUS. Do you see an improvement?

Mr. LINDBERG. I think we feel an improvement in terms of the working relationships with BPA and we have set up a number of informal arrangements where we meet with them in a more sitting around the table visiting rather than dealing in congressional hearings or——

Senator BAUCUS. So you——

Mr. LINDBERG. So we sense a small amount of improvement.

Senator BAUCUS. The nature of the improvement is what? You meet with them or——

Mr. LINDBERG. To this point it has been, in some of the issues that I've brought up, we have had meetings with BPA staff with low or middle level management. We've been encouraged by the reaction of the staff people to some of the suggestions that some of the issues that we've raised. I think it's too soon to tell what will happen to these suggestions as they float up the line to the top policymakers at BPA, but I honestly would not be here today giving some testimony that's fairly critical if I thought these problems were solved.

Senator BAUCUS. Do you have any reaction to BPA testimony early this morning that the Constitution requires BPA when it disagrees with the State, and I take it when it also disagrees with a city or a county, the Constitution requires BPA to not comply with the city or the State or the local government laws and ordinances?

Mr. LINDBERG. I totally disagree with that, and the city of Portland, as a matter of fact, has spent some money preparing in the eventuality that there would be a lawsuit, because we believe that BPA really has not had a correct interpretation of the act in terms of how they work with local government. We have both inside our city, our city attorney's office, and we have contracted outside with an attorney and a lot of work has been done that we think supports our position that BPA should be working with us directly.

The sad thing I think that I have experienced is that BPA does not really seem willing to sit down and negotiate some of these issues, but has really simply closed the door and, say, had a very strict interpretation of the act, and so I think the problem that we have is one of an organization needing to determine how they can be flexible enough to meet their objectives and work with local governments versus simply closing the door behind the narrowest, legalistic interpretations of the act.

Senator BAUCUS. Did you say that your counsel—or you're asking counsel to draft a brief or a position paper stating that, at least in your counsel's opinion, the supremacy clause does not require BPA to not agree with a State, or did I misunderstand you?

Mr. LINDBERG. The legal work that we have done, frankly, probably does not deal with that particular issue that you have talked about. I have used it as a springboard as an example of other areas——

Senator BAUCUS. Sure, I understand. Do you have any view as to the role of the supremacy clause in this case?

Mr. LINDBERG. I am not familiar with the supremacy clause, and I was not here for the testimony this morning.

Senator BAUCUS. Oh, I'm sorry; OK. Do you think your views about BPA are pretty much shared across the board by local governments in the BPA region?

Mr. LINDBERG. I firmly believe that that is the case. I would mention first of all that the Oregon League of Cities, I'm officially representing their position. Second, we have been in very close contact with a number of cities around the region, particularly in the State of Washington. They feel very strongly the same way about the views that I've conveyed today.

Senator BAUCUS. What is the one single action Congress could take to by and large begin to remedy the problem of inadequate BPA sensitivity to local and State concerns? What's the one action Congress could take?

Mr. LINDBERG. I would say that—and I didn't really come prepared with a specific recommendation, but I would say that new language could be drafted to absolutely make clear the role of local governments in implementing the regional power bill and that it would be language with congressional intent which would eliminate any kind of conflict that we have today between BPA and local governments, and that is language that we could certainly—we'd love to participate in drafting, because I think that even the attorneys that we have admit that in some areas of the act it's very ambiguous in terms of the role of local government. In some areas it's very clear and very strong, but in other areas, it's somewhat weak, so we would see some areas where we could strengthen that to make clear the role of local government.

Senator BAUCUS. Thank you very much, Mike. I appreciate your testimony.

Mr. LINDBERG. Thank you.

[The prepared statement of Mr. Lindberg follows:]

PREPARED STATEMENT OF MIKE LINDBERG

I HAVE TRAVELED THIS DISTANCE TO SPEAK WITH YOU TODAY BECAUSE I REPRESENT 370,000 NORTHWEST CITIZENS WHO DESERVE THE ENERGY CONSERVATION BENEFITS CONGRESS INTENDED THEM TO HAVE FROM THE REGIONAL POWER PLANNING AND CONSERVATION ACT. I AM CONVINCED THAT THE CONSERVATION AND RENEWABLE RESOURCE PRIORITIES OF THE ACT WILL HELP KEEP ELECTRICITY RATES DOWN, WILL CREATE JOBS, AND WILL CONTRIBUTE TO THE STABILIZATION OF THE LOCAL ECONOMY WHICH THIS REGION SO DESPERATELY NEEDS. I HOPE TO OFFER YOU SOME INSIGHT AS TO WHY, DESPITE PASSAGE OF THE REGIONAL POWER ACT, PORTLAND CITIZENS HAVE NOT BEEN BENEFICIARIES. FINALLY, I WILL PROVIDE SUGGESTIONS FOR WHAT CAN BE DONE.

I HAVE A LONG HISTORY AND FAMILIARITY WITH THE POWER ACT, AND A STRONG PERSONAL BELIEF IN ITS GOALS. DURING FINAL DELIBERATIONS OVER THE ACT, THE CITIES OF PORTLAND AND SEATTLE WERE LEADERS, REPRESENTING LOCAL GOVERNMENTS IN WASHINGTON, D.C. AND ADVOCATING CONSERVATION. THE PRIORITIES ASSIGNED TO CONSERVATION AND RENEWABLE RESOURCES, THE CREATION OF THE POWER COUNCIL, AND SPECIFIC LANGUAGE DEFINING LOCAL GOVERNMENT ROLES AND RESPONSIBILITIES CAN BE CREDITED TO THE PRIMARY NEGOTIATING EFFORTS OF PORTLAND AND SEATTLE.

LACED THROUGHOUT THE ACT, LOCAL GOVERNMENTS ARE RECOGNIZED FOR THEIR ROLE IN POLICY DEVELOPMENT, IN PLANNING, AS MECHANISMS FOR ACCOMPLISHING CONSERVATION MEASURES AND AS GENERATORS OF ELECTRIC ENERGY. THE BPA ADMINISTRATOR IS EXPECTED TO PROVIDE "TECHNICAL AND FINANCIAL ASSISTANCE" TO BOTH HIS CUSTOMERS AND TO "GOVERNMENTAL AUTHORITIES" TO ENCOURAGE CONSERVATION AND THE PROGRAMS OF "STATES OR POLITICAL SUBDIVISIONS THEREOF" (SECTION 6(A)(1)).

FURTHERMORE, THE ACT DIRECTS THE ADMINISTRATOR TO "MAKE MAXIMUM PRACTICABLE USE OF CUSTOMERS AND LOCAL ENTITIES CAPABLE OF ADMINISTERING AND CARRYING OUT" CONSERVATION PROGRAM MEASURES OR RESOURCE ACQUISITIONS (SECTION 6 (E) (2)).

MY READING OF THESE AND OTHER KEY SECTIONS OF THE ACT, AND MY REVIEW OF THE LEGISLATIVE HISTORY OF THE ACT, LEAVE ME WITH NO DOUBT THAT CONGRESS INTENDED LOCAL GOVERNMENTS

TO BE MAJOR ACTORS IN THE ACHIEVEMENT OF REGIONAL POWER ACT GOALS. CONGRESS HAD NO TROUBLE RECOGNIZING THE ASSETS OF LOCAL GOVERNMENTS. BUT BPA HAS BEEN SLOW TO REACH THE SAME CONCLUSION.

ONE MONTH AFTER THE ACT PASSED, BPA QUICKLY SUBMITTED TO CONGRESS AN AMENDED BUDGET FOR FISCAL YEAR 1981. OF THE $48 MILLION ADDED FOR ENERGY CONSERVATION AND RENEWABLE RESOURCES, $500,000 WAS TO BE SPREAD ACROSS THE REGION FOR "FINANCIAL ASSISTANCE TO STATE AND LOCAL GOVERNMENTS AND INDIAN TRIBES". OVER THE FOLLOWING 8 MONTHS, REPRESENTATIVES OF THESE GROUPS PARTICIPATED IN A SERIES OF BPA PUBLIC MEETINGS ON THE ONLY CONSERVATION PROGRAM AVAILABLE TO THEM DURING THE FIRST YEAR IMPLEMENTATION OF THE POWER ACT.

MEETING PARTICIPANTS CLAIMED THAT THE LIMITED PLANNING AND FEASIBILITY SCOPE OF THIS GRANT PROGRAM WOULD EXCLUDE THOSE ENTITIES WHICH WERE FURTHER ALONG TOWARD OFFERING KILOWATT HOUR SAVINGS; THAT THE AMOUNT OF MONEY SET ASIDE FOR THESE GROUPS WAS SO SMALL THAT MOST WOULD RECEIVE NO FUNDING; AND THAT THOSE WHO DID RECEIVE A GRANT WOULD HAVE

TOO LITTLE FUNDS TO ACCOMPLISH VERY MUCH OF SIGNIFICANCE. THESE COMMENTS DID NOT ALTER BPA PROGRAM DIRECTION. THE PROGRAM RESULTED IN LESS THAN 20 GRANTS AND NO HARD ENERGY SAVINGS. IT WAS CONTINUED AT THE SAME LEVEL OF FUNDING AND SCOPE OF WORK FOR THIS CURRENT FISCAL YEAR AND ITS FUTURE IS STILL UNCERTAIN.

DURING THAT FIRST SERIES OF MEETING ON LOCAL GOVERNMENT FINANCIAL ASSISTANCE, BPA POLICIES TOWARD THE CONSUMERS IN THE REGION BECAME DISTINCT--AND SEPARATE--FROM THEIR POLICIES TOWARD TRADITIONAL UTILITY CUSTOMERS. DESPITE CLEAR LANGUAGE IN THE ACT DIRECTING BPA TO COOPERATE WITH GOVERNMENTAL AUTHORITIES AND ENCOURAGE MAXIMUM COST-EFFECTIVE CONSERVATION, BPA PROGRAM OFFERINGS ARE:

1. DISPROPORTIONATELY AVAILABLE TO, AND ADMINISTERED BY, BPA UTILITY CUSTOMERS;
2. FURTHER RESTRICTED TO THOSE ENTITIES SERVED BY BPA UTILITY CUSTOMERS WHO HAVE SIGNED POWER SALES AGREEMENTS WITH BONNEVILLE; AND,
3. SUBJECT TO A PRICE CEILING OF A MAXIMUM 3.5¢ PER KILOWATT HOUR FOR CONSERVATION

WHILE BPA PAYS 6-8¢ PER KILOWATT HOUR FOR FUTURE POWER FROM WPPSS NUCLEAR POWER PLANTS 1, 2, AND 3, WHETHER OR NOT THEY ARE EVER COMPLETED AND ON LINE.

LET ME EXPLAIN THE IMPACT OF THESE POLICIES ON LOCAL GOVERNMENTS.

1. PREFERENCE TREATMENT FOR BPA UTILITY CUSTOMERS: THE OVERWHELMING MAJORITY OF BPA CONSERVATION DOLLARS HAVE BEEN ALLOCATED FOR 5 CONSERVATION PROGRAMS ADMINISTERED BY BPA CUSTOMER UTILITIES. APPROXIMATELY $130 MILLION OF THE TOTAL $174 MILLION BUDGETED FOR CONSERVATION IN FY 82 IS EARMARKED FOR RESIDENTIAL WEATHERIZATION ($69 MILLION); WATER HEATER WRAPS ($36.9 MILLION); SHOWER FLOW RESTRICTORS ($480,000); COMMERCIAL LIGHTING AND WATER HEATER WRAPS ($5.4 MILLION) AND STREET AND AREA LIGHTING ($18.9 MILLION).

   PROGRAMS SPECIFICALLY FOR STATE AND LOCAL GOVERNMENTS, INDIAN TRIBES OR OTHER ENTITIES TOTALLED AN ESTIMATED $3 MILLION, OR APPROXIMATELY 4% OF THE TOTAL FY 82 CONSERVATION BUDGET.

BESIDES HAVING SUCH A SMALL SHARE OF THE TOTAL PIE, STATE AND LOCAL GOVERNMENTS, INDIAN TRIBES, SCHOOLS, HOSPITALS AND OTHERS ALSO COMPETE FOR LIMITED RESOURCES. A TOTAL AMOUNT OF $2.6 MILLION FOR TECHNICAL ASSISTANCE IS FIRST DIVIDED 4 WAYS FOR EACH OF THE 4 STATES, THEN DIVIDED FURTHER BETWEEN SMALL CONSUMERS AND LOCAL GOVERNMENTS. THE LATTER END UP WITH LESS THAN $500,000. THE PROGRAM REMAINS SOFT, FUNDING ONLY EDUCATION AND STUDIES. AND NO SUCH COMPETITION EXISTS AMONG UTILITY CUSTOMERS.

2. POWER SALES AGREEMENTS WITH BPA: BPA HAS TAKEN THE POSITION THAT LOCAL GOVERNMENTS SERVED BY UTILITIES WHICH HAVE NOT SIGNED NET POWER REQUIREMENTS CONTRACTS WITH BPA ARE NOT ELIGIBLE TO PARTICIPATE IN REGIONAL ACT CONSERVATION PROGRAMS. THE RATIONALE FOR THIS POSITION IS THAT BPA'S INTERPRETATION OF ITS OBLIGATION UNDER THE ACT IS TO MEET THE POWER NEEDS OF THOSE UTILITY CUSTOMERS WHICH SIGN REQUIREMENTS CONTRACTS. BPA ASSERTS THAT SINCE CONSERVATION MEASURES ACHIEVED BY THOSE WHO ARE NOT PURCHASING THEIR REQUIREMENTS FROM BPA WOULD NOT REDUCE THAT

OBLIGATION, THEN BPA IS NOT REQUIRED TO FUND SUCH ACTIVITIES.

THIS EXCLUSIONARY POLICY HAS UNNECESSARILY DELAYED CONSERVATION OPPORTUNITIES FOR LOCAL GOVERNMENTS IN THE REGION. IT ALSO DENIES LANGUAGE IN THE ACT FOR BPA TO MAXIMIZE PARTICIPATION OF LOCAL GOVERNMENTS TO ACHIEVE CONSERVATION. THE ACT DOES NOT BAR DIRECT ACCESS OF NONUTILITY, LOCAL GOVERNMENTS TO CONSERVATION PROGRAMS ADMINISTERED BY BPA. IN FACT, THE ACT SEEKS TO ENCOURAGE DIRECT LOCAL GOVERNMENT PARTICIPATION. NOR DOES THE ACT RESTRICT PARTICIPATION IN CONSERVATION PROGRAMS TO UTILITIES, OR TO LOCAL GOVERNMENTS SERVED BY UTILITIES WHICH HAVE SIGNED REQUIREMENTS CONTRACTS WITH BPA. BPA'S OBLIGATION TO ACQUIRE CONSERVATION RESOURCES EXISTS EVEN IF IT CAN MEET ALL ITS CONTRACTUAL OBLIGATIONS.

THOUGH I OPPOSE THIS BPA INTERPRETATION OF THE LAW AND THE RESULTING IMPACT ON LOCAL GOVERNMENTS, PERHAPS IT WOULD HAVE BEEN EASIER TO ACCEPT HAD

SOME OTHER COMPLICATIONS NOT ARISEN. BPA OFFERED ALL UTILITIES IN THE REGION POWER SALES AGREEMENTS ONE YEAR AGO. PORTLAND'S TWO INVESTOR-OWNED UTILITIES WAITED UNTIL JUST DAYS BEFORE THE AUGUST 28, 1982 DEADLINE BEFORE SIGNING, AS DID NEARLY EVERY UTILITY IN THE REGION. NEARLY ALL CONSERVATION PROGRAMS WERE INACCESSIBLE TO LOCAL GOVERNMENTS UNTIL JUST 3 DAYS AGO.

WHILE UTILITIES WERE NEGOTIATING WITH BPA OVER CONTRACT SPECIFICATIONS, LOCAL GOVERNMENTS COULD HAVE BEEN RECEIVING REIMBURSEMENTS FOR STREET LIGHTING CONVERSIONS. IN PORTLAND, WHERE THE CITY OWNS ITS STREET LIGHTS AND HAS CONVERTED 18,000 OF THEM TO HIGH PRESSURE SODIUM VAPOR, THE CITY COULD HAVE BEEN RECEIVING THE $1 MILLION IT IS NOW DUE.

3. PRICE CEILING FOR CONSERVATION: THIS SPRING, BONNEVILLE RELEASED ITS FIRST DEMAND FORECAST, PREDICTING A 1.7% AVERAGE ANNUAL ELECTRIC GROWTH RATE FOR THE NEXT 20 YEARS. BPA ALSO PROJECTED THAT THIS SLOWER GROWTH RATE IN ENERGY DEMAND WOULD RESULT IN ANNUAL

POWER SURPLUSES OF AS MUCH AS 2200 AVERAGE MEGAWATTS OVER THE NEXT TEN YEARS.

SEVERAL SIGNIFICANT BPA POLICY DECISIONS HAVE RESULTED FROM THIS FORECAST. COMPLETION OF WPPSS NUCLEAR PLANT ONE HAS BEEN DEFERRED FOR UP TO FIVE YEARS. CONSERVATION PROGRAMS HAVE BEEN LIMITED TO THOSE CURRENTLY BEING OFFERED. AND, MOST SIGNIFICANT OF ALL, BPA ADJUSTED ITS COST-EFFECTIVENESS FORMULA FOR CONSERVATION AND OTHER RESOURCES TO "REFLECT THE REDUCED VALUE OF THE RESOURCES DURING THE PROBABLE NEAR-TERM SURPLUSES" (BPA ANALYSIS OF RESOURCE ALTERNATIVES, P.5, 4-19-82). THIS "ADJUSTMENT" EQUALS A CEILING OF 35 MILLS WHICH BPA WILL PAY FOR RESOURCES TO BE ACQUIRED AND PRODUCING POWER PRIOR TO 1985.

IN FACT, BPA'S CURRENT CONSERVATION EFFORT DOES NOT PRESENTLY APPROACH EVEN THE 35 MILL LEVEL. EIGHTY-SEVEN PERCENT OF BPA CONSERVATION PROGRAM COSTS ARE FOR KILOWATT HOURS ACQUIRED AT 27 MILLS OR LESS. THIS LEVEL OF EFFORT MIGHT BE DEFENSIBLE IF BPA COULD CONVINCINGLY SHOW THAT NO MORE SAVINGS WERE PRACTICABLE.

THIS CASE IS DIFFICULT TO MAKE SO LONG AS BPA LIMITS ITS EFFORTS TO ITS OWN PROGRAMS, OPERATED ALMOST ENTIRELY THROUGH ITS CUSTOMER UTILITIES, INSTEAD OF MORE DELIBERATELY SOLICITING LOCAL GOVERNMENTS AND PRIVATE SPONSORS AS THE ACT ENVISIONS.

THE ACT SPECIFIES HOW THE COST-EFFECTIVENESS OF A RESOURCE IS TO BE CALCUALTED AND STIPULATES CERTAIN ADJUSTMENTS TO BE MADE WHEN DIFFERENT RESOURCES ARE BEING COMPARED. THE LOW-COST 35 MILL CEILING SENDS A DISCOURAGING MESSAGE TO THE PUBLIC OVER THE VALUE OF CONSERVATION DURING THE CURRENT SURPLUS PERIOD. IT FURTHER REDUCES OPPORTUNITIES FOR MAXIMIZING CONSERVATION FROM LOCAL GOVERNMENTS OR OTHER SOURCES.

WHEN ADDED TO THE NET BILLING ARRANGEMENT BPA HAS FOR WPPSS 1-2-3, CONSERVATION IS OVERSHADOWED STILL MORE. THE 60% BPA RATE HIKE WHICH GOES INTO EFFECT OCTOBER 1ST FURTHER SUBSTANTIATES BPA'S REVERSED PRIORITIES: 70% OF THE RATE INCREASE IS FOR WPPSS 1-2- AND 3; 5% IS FOR CONSERVATION.

IN CONCLUSION, BPA POLICY AND PROGRAM DECISIONS HAVE DISUADED LOCAL GOVERNMENTS. BONNEVILLE MEETINGS, CONTRACTS, NEGOTIATIONS AND ADMINISTRATIVE REQUIREMENTS ARE CUMBERSOME AND LABORIOUS FOR ALL CONCERNED. LOCAL GOVERNMENT TRADE ASSOCIATIONS AND THOSE JURISDICTIONS WHO HAVE ASSERTED LEADERSHIP ON BEHALF OF SEATTLE, TACOMA, OR SALEM, AS EXAMPLES, SHARE THE PERCEPTION THAT BONNEVILLE DOES NOT TAKE LOCAL GOVERNMENTS SERIOUSLY.

SINCE THE ACT PASSED, LOCAL GOVERNMENTS HAVE CHARACTERIZED BPA AS LACKING AN UNDERSTANDING OF HOW LOCAL GOVERNMENTS CAN CONTRIBUTE TO THE REALIZATION OF REGIONAL ACT GOALS. BPA HAS DONE THE BARE MINIMUM TO COMPLY WITH THE TECHNICAL AND FINANCIAL ASSISTANCE REQUIREMENTS OF THE ACT AND ADDED ITS OWN ADDITIONAL RESTRICTIONS ONTO LOCAL GOVERNMENT PROGRAMS. INSTEAD OF VIEWING THE ACT AS AN OPPORTUNITY TO BROADEN ITS AUDIENCE AND ASSUME NEW REGIONAL RESPONSIBILITIES, BPA HAS KEPT ITS PERSPECTIVES NARROW AND TAKEN THE SLOWEST, MOST CAUTIOUS ROUTE POSSIBLE TOWARD CONSERVATION IN GENERAL AND LOCAL GOVERNMENTS, IN PARTICULAR.

THE FOLLOWING SUGGESTIONS ARE WAYS BONNEVILLE COULD IMPROVE ITS RELATIONSHIPS WITH LOCAL GOVERNMENTS IN THE REGION AND MEET THE CONGRESSIONAL INTENT OF THE LAW:

1. ACTIVELY AND AGGRESSIVELY SEEK CONSERVATION OPPORTUNITIES WITHIN THE STRUCTURES OF LOCAL GOVERNMENTS. THESE INCLUDE USING CODE, ZONING AND PLANNING MECHANISMS TO ENCOURAGE OR MANDATE CONSERVATION STANDARDS.
2. TAP THE ELECTRIC ENERGY EFFICIENCY IMPROVEMENTS THAT ARE WITHIN THE PURVIEW OF LOCAL GOVERNMENTS. DESIGN DIRECT PROGRAMS WITH HIGHER FUNDING LEVELS. THE UPCOMING BONNEVILLE INSTITUTIONAL BUILDINGS PROGRAM ADDRESSES THE RIGHT AUDIENCE OF BUILDING ENERGY MANAGERS FOR PUBLIC BUILDINGS, FACILITIES, SCHOOLS AND HOSPITALS. HOWEVER, THE ANNUAL BUDGET OF $8 MILLION IS DILUTED WITH ADMINISTRATIVE REQUIREMENTS, TRAINING AND STUDIES. GREATER EMPHASIS IS NEEDED ON CAPITAL IMPROVEMENTS.

3. BPA SHOULD REMOVE RESTRICTIONS FROM LOCAL GOVERNMENT PROGRAM PARTICIPATION. THE LIMITATION

ON CUSTOMER SERVICE AREAS AND THE EMPHASIS ON UTILITY PROGRAMS ARE NOT JUSTIFIED AND DEFEAT INTENTIONS OF THE ACT ITSELF.

4. BPA SHOULD ESTABLISH A FLEXIBLE VALUE FOR CONSERVATION AND OTHER RESOURCE ACQUISITIONS. THE CURRENT LOW-COST CEILING DISCOURAGES PARTICIPATION, SLOWS THE SEARCH FOR RESOURCES AND UNDERVALUES THE LONG-TERM WORTH OF CONSERVATION TO THE REGION.

5. BPA SHOULD PROVIDE STAFF TRAINING AND SEEK TO HIRE STAFF WITH EXPERIENCE AND FAMILIARITY ON LOCAL GOVERNMENT ENERGY CAPABILITES.

6. BPA SHOULD OFFER ENERGY CONSERVATION PROGRAMS, BOTH NOW AND IN THE FUTURE, WHICH CAPITALIZE ON LOCAL GOVERNMENT ACCOMPLISHMENTS AND ABILITIES. BPA COULD SUPPORT DECENTRALIZED, COMMUNITY-BASED MARKETING PROGRAMS, TAPPING LOCAL GOVERNMENTS, COMMUNITY GROUPS, NEIGHBORHOOD ASSOCIATIONS AND UTILITIES IN A COLLECTIVE LOCAL APPROACH TO CONSERVATION PROGRAM IMPLEMENTATION.

7. BPA SHOULD STEP-UP ITS OVERALL CONSERVATION EFFORTS. ANY NUMBER OF FACTORS COULD SHORTEN THE TENUOUSLY FORECASTED SURPLUS PERIOD. THE LONG-TERM ADVANTAGES OF CONSERVATION SHOULD BE UPHELD, INCLUDING THEIR BENEFITS TO RATE-PAYERS WHO WILL HAVE TO PAY MORE FOR CONSERVATION LATER IF OPPORTUNITIES ARE SLOWED OR POSTPONED.

ONE FINAL NOTE. BPA HAS HAD, UNDENIABLY, A LITANY OF NEW RESPONSIBILITIES AND EXPECTATIONS IMPOSED UPON ITS ESTABLISHED AND LARGE INSTITUTIONAL STRUCTURE. THE ACT WAS WRITTEN TO PROTECT THE REGION FROM POWER DEFICITS, NOT SURPLUSES. BPA RATES ARE HIGHER THAN ANTICIPATED AND LESS ATTRACTIVE TO THE REGION'S UTILITIES. POWER SALES AGREEMENTS WERE EXPECTED TO BE SIGNED ALMOST WITHOUT QUESTION UPON OFFERING.

TO COPE WITH THESE UNANTICIPATED EVENTS AND STILL MAINTAIN ITS ONGOING UTILITY RESPONSIBILITIES, BPA HAS ENFORCED ITS OWN POLICIES AND PROGRAMS AND FAVORED RELATIONSHIPS WITH ITS TRADITIONAL UTILITY CUSTOMERS. THESE

POLICIES AND PROGRAMS SHOULD BE VIEWED AS SHORT-TERM MEASURES UNTIL THE POWER COUNCIL'S PLAN IS ADOPTED. THE REAL TEST FOR THE EFFECTIVENESS OF BPA, LOCAL GOVERNMENTS AND CONSERVATION WILL BE TAKEN WHEN THE COUNCIL'S PLAN IS IMPLEMENTED.

CONGRESSIONAL ATTENTION SHOULD NOT ONLY BE CALLED TO THIS INTERIM CURRENT PERIOD, BUT FOCUSED ON THE DEVELOPMENT OF THE POWER COUNCIL'S FORECAST AND PLAN, WHICH WILL TAKE PRECEDENCE.

THANK YOU FOR THE OPPORTUNITY TO PRESENT THESE COMMENTS.

Senator BAUCUS. The next witnesses will be Wilbur Anderson, Vigilante Electric Co-op, and Gary Mason, Ravalli County Electric Co-op. Thank you Wilbur and Gary for coming over and why don't you proceed. Of course, we encourage you to summarize your statement and proceed otherwise in any manner that you wish.

STATEMENT OF WILBUR L. ANDERSON, MANAGER, VIGILANTE ELECTRIC COOPERATIVE, DILLON, MONT.

Mr. ANDERSON. Thank you, Senator. For the record, my name is Wilbur Anderson. I'm manager of Vigilante Electric Cooperative at Dillon, Mont., and immediate past president of the Northwest Public Power Association. I appreciate the opportunity to present some comments at this hearing.

Vigilante Electric started receiving wholesale power from the Bonneville Power Administration in 1967, and for 29 years prior to this time, Vigilante purchased power from the Montana Power Co. The cost of this power was about 30 percent higher than the power from the Federal dams on both the Columbia and the Missouri River Basins. It would be impossible to calculate the economic and social benefits that BPA power has brought to western Montana consumers through the cooperatives and investor-owned systems as well. The availability of good, dependable, reasonably priced power has proven to be the very lifeblood of our agricultural economy here in Montana.

Furthermore, Bonneville power made available to large industries such as the aluminum company at Columbia Falls, Stauffer Chemical Co. at Butte, and a large number of wood products industries has provided thousands of jobs to Montana residents. For many years, the power generated and used in Montana was supplemented by power over BPA transmission lines into western Montana from the Columbia River Basin.

In recent months, the news media has carried statements by State, congressional and environmental leaders charging that BPA is a big, giant, Federal agency trying to run roughshod over western Montana. These charges are totally unfounded and untrue, based on past and present operations of this agency. Complete environmental, economic and social studies are made of their proposed projects prior to construction, and these facts speak for themselves. I would like to say that a lot of the critics of Bonneville are people who don't even know what the agency is and have absolutely no experience nor 10- or 15-year history of dealing with these people. I think it's interesting to note that these are the harshest critics of Bonneville.

State and other officials state that BPA transmission projects should come under the most restrictive and oppressive major facilities siting act in the West, and I'm referring to the Montana Major Facility Siting Act. Existing law provides that neither the Bureau of Reclamation nor Bonneville Power transmission and other facilities need comply with these rules and regulations. Recent court rulings confirm that these additional costs and delays to these agencies and ratepayers in Montana are not justified. There is clearly no good reason to burden Montana consumers with added costs, when many families without jobs can hardly meet their power costs now.

Other critics have suggested that BPA should make in lieu tax payments to the State and counties where facilities are located. BPA operates, as Mr. Johnson pointed out this morning, on a self-financing basis, so all costs are actually paid by the consumers each month in their power bills. I would like to point out that BPA ratepayers are now paying $6 million per year for the Regional Power Council, $10 million per year for the fish and wildlife programs, and $300 million for conservation programs in the Northwest. The BPA customer systems and consumers on those systems are certainly paying for the benefits of this transmission network. There is no need to impose new and added taxes nor added costs on Montana consumers.

The gentleman that you referred to as the expert from Portland failed to emphasize that their city is served by a large private utility, but they are not paying for these costs I just mentioned to you. It would be great if you could sell BPA on furnishing them all the money they need for their conservation program. I'm sure the city of Helena, Billings, and many others would enjoy this too. I hope you can sell such a thing because we are paying for it, not them. Their ratepayers are not paying a dime for this. We rural consumers are paying for it. We have a lot of other cities in the Northwest in the same situation. Gee, if they could put this over, this would be great. We're not going to go for it.

There are some things that can be done to improve the relations between the State of Montana and Bonneville Power. First, consider the economic and social consequences of not having enough power for the farms, ranches, businesses and the small amount of industry we have in Montana.

Second, realize that the growth rate of BPA cooperative consumers in western Montana is three to four times the projected growth rate of 1.6 percent.

Third, Bonneville Power has been very responsive to both State government and local concerns about transmission line facilities as evidenced by the number of meetings called for discussion of these issues with all parties of interest.

Fourth, the function of the Northwest Power Planning Council is to develop a long-range energy plan for the Pacific Northwest, to insure that we have an adequate and dependable power supply in the region. The council should not be put into the role of trying to exercise an oversight function of BPA. They have plenty to do at this point if they are to meet their April, 1983 deadlines.

Fifth, the State-Federal relationship for siting transmission and other facilities can be improved if the State would start action right now to relax the very restrictive and burdensome requirements presently found in the Major Facility Siting Act.

The DNRC rules and regulations are impossible to comply with currently, and they are now asking for number of washer and dryer loads, along with the amount of family income in households for determining need and siting of facilities. These are in their current proposals, by the way. There is a great need for some commonsense in the making and implementation of rules and regulations of this nature. The positive impacts of new jobs and increased business incomes have not been mentioned by critics of BPA, nor the real need for capacity and reliability that this transmission and other facilities would bring into this area and region.

Sixth, the primary thrust of our economy is based on an adequate, dependable supply of energy. Seventh, a progressive economy is the only way that we can provide jobs for people and alleviate unemployment in Montana. Eighth, because of our economic potential, the intermountain West is probably the fastest growing, fastest developing region of our country. Ninth, because of the growing export demand for food, the regions whose economies are based on agriculture, new technologies and energy resources are going to develop and continue to do so. Tenth, finally, let's all consider the values that built this society and made our country great while trying to work together for the mutual good in solving our energy needs. Thank you very much, Senator.

Senator BAUCUS. Thank you, Wilbur. Gary, why don't you go next and then I'll have questions for both of you.

STATEMENT OF GARY MASON, GENERAL MANAGER, RAVALLI COUNTY ELECTRIC COOPERATIVE, CORVALLIS, MONT.

Mr. MASON. My name is Gary Mason, and I'm the general manager for Ravalli County Electric, and I'm here to testify against any requirement that would cause BPA to pay payments in lieu of taxes. All the costs incurred by BPA, including the costs of transmission lines to purchase power, maintenance, hearings, administration, and so on, are eventually passed on to the consumer. These consumers are 34,000 served by the electric cooperatives in western Montana and the Flathead irrigation project. Pacific Power & Light in western Montana and Montana Power Co. The Montana Power Co. and Pacific Power & Light pay a portion of BPA's expenses through purchases of the surplus power, wheeling agreements and exchange agreements if they sign the exchange agreements, and I understand Montana Power Co. did the other day. Therefore, all of western Montana is affected.

As the percentage of BPA lines in Montana is very small compared to the total, which is 5 percent, Montana would receive a small portion of the payment, but the people in western Montana would pay through their rates a large portion to Washington and Oregon and Idaho. Through all this we have another built-in tax.

We believe it is better to pay the tax to our local governments and not a hidden tax in our local electric rates. We believe the agreement of understanding between the Bonneville Power Administration and the Department of Natural Resources and Conservation shows there is cooperation and there is no need for legislation.

BPA miles of line total 13,290, and BPA miles of line in Montana total 667. I'd like to add another comment. We also bought our power from the Montana Power Co. and the rates in 1947 are very similar to the rates that we'll be imposing in 1983.

Senator BAUCUS. I'm sorry, I missed that. What?

Mr. MASON. Our consumers paid per kilowatt hour in 1947 41.37 mills—41 mills per kilowatt hour. In 1983 we're going to pay 42 mills. So in 1947 our consumers were paying as much as they will be this coming year, so therefore——

Senator BAUCUS. Much more if you take inflation into consideration.

Mr. MASON. So therefore you can see what advantage and prosperity actually that BPA has brought into us in Montana. Thank you.

Senator Baucus. Thank you very much, Gary. First of all, I want to thank you both for pointing out the benefits of BPA. There's no doubt BPA has provided tremendous benefits, particularly to western Montana, through power supplied. There's no doubt that the area served by Ravalli and Vigilante are counting on BPA to exist. It would certainly cause problems of tremendous proportion, that's very true, and I want to make it clear here that BPA has provided a great service to our State, and the point of the hearing really is to improve upon that service.

Both of you are in opposition to any requirement that BPA make payments in lieu of taxes, and it struck me because, as I'm sure you heard this morning, Joe McElwain of Montana Power said he favored payments in lieu of taxes. I am wondering, why do the co-ops disagree with payments in lieu of taxes, but Montana Power agrees that BPA should make such payments?

Mr. Mason. Actually, we deal directly with BPA and their expenses are passed on directly to the co-ops, where Montana Power Co. pays a portion of those expenses in their wheeling rates, and that, so we would feel these costs directly.

Senator Baucus. I don't know if I fully understood that. If I understood Mr. McElwain, if Montana Power built the line itself, not BPA, Montana Power would be paying property taxes to the counties affected. As far as he's concerned, he did not precisely address this point, but he seemed to be saying, as I understood him, that yes, the customers would be paying higher rates, but it would be a very, very small increase. He seemed to be agreeing with the principle that whether it's the power company or whether it's BPA, the utility entity should pay, if not property taxes, payments in lieu of taxes.

Mr. Mason. OK, let's just say the consumers in western Montana picked up the bill for this power line. Just a hypothetical.

Senator Baucus. Well, that's not what payment in lieu of taxes is though. Let's take the hypothetical then.

Mr. Mason. Let's take the $3 million that was presented this morning and say 34,000 consumers pick that up. That is somewhere around $6.75 per month per consumer.

Senator Baucus. Well, would that necessarily be how it would operate? Would 3 million payments in lieu of taxes necessarily all be picked up by Montana customers of BPA or would the 3 million be spread out in the entire BPA system?

Mr. Mason. It would be spread out all through BPA, but also if you take Washington and Oregon with their heavily populated areas and more lines that BPA has in that area, it's going to average out.

Senator Baucus. Has the Vigilante or Ravalli Co-op calculated the payments in lieu of taxes that BPA would be required to pay in other States other than Montana?

Mr. Mason. No.

Senator Baucus. Then I don't understand your argument. You're saying that if payments in lieu of taxes are required in legislation then necessarily Montana customers would be paying more than other BPA-served customers would be paying. Is that what you're saying? I'm having a hard time understanding that if you haven't yet calculated the in-lieu payments, not only in Montana, but in other States, assuming under legislation BPA would be required to make such payments?

Mr. MASON. BPA has got total miles of line of 13,290 miles.

Senator BAUCUS. But we don't know how many of those lines are in counties.

Mr. MASON. Not in counties, but they have 667 in Montana.

Senator BAUCUS. In State and county land, as opposed to private land?

Mr. MASON. What I'm getting at is they have 667 in Montana, which a lot of it is on federally-owned land. The biggest share of this land—or the biggest share of these miles of line represent miles of line in Idaho, Washington, and Oregon. So if we spread all the cost and took all the States, I'm afraid that western Montana would be hit harder than it would without that.

Senator BAUCUS. Well, we could probably pursue this more. Could you provide the best analysis you can at this point for the record in dollar amounts attributable to the lines and the payments in lieu—with respect to—attributable to various States respectively to the best you possibly can?

Mr. MASON. We can for Montana.

Senator BAUCUS. Well, to make your argument, you have to know the information from other States.

Mr. ANDERSON. Senator, I think a good example of what he was saying is that our density is about 2 meters for each mile of land.

Senator BAUCUS. Is about what; excuse me?

Mr. ANDERSON. Is about 2 meters for each mile of powerline.

Senator BAUCUS. Two meters?

Mr. ANDERSON. Two meters for each mile of powerline.

Senator BAUCUS. Oh, electric meters; you mean meters.

Mr. ANDERSON. Montana Power has in excess of 15. The dollar impact would be much less on a system of over 15 per mile than a system like his and mine that only have 2 per mile.

Senator BAUCUS. How do we achieve some balance here? What do we say to these counties? If Montana Power were to build the line, it would pay taxes and so forth. What do we say to these counties when BPA builds a line and the counties are deprived of that revenue? From the counties' viewpoint, from taxpayers in those counties who may or may not be ratepayers, what do we say to them?

Mr. ANDERSON. BPA has been around for a good many years, Senator.

Senator BAUCUS. Is that an adequate answer to the counties and to those taxpayers in those counties—that BPA has been around——

Mr. ANDERSON. It's rough.

Senator BAUCUS. It's rough?

Mr. MASON. Maybe we can address a little something else here.

Senator BAUCUS. And particularly when Montana Power would be paying the taxes if Montana Power had built the line.

Mr. ANDERSON. We understand that.

Mr. MASON. The point we're trying to make here is that it's going to be a definite cost to our ratepayers and we believe all the rates and everything else is going up, it's hitting our ratepayers hard anyway. That's the reason we're in the position we're in.

Senator BAUCUS. I was interested in the part of your testimony that seemed to state that the Siting Act was so burdensome that BPA should not be asked to comply with it, and you also seemed to be saying it was so burdensome that anybody, any utility within the State should not be asked to comply with it. Is that a fair interpretation of your statement?

Mr. ANDERSON. Yes, sir, it is. I'd like to point out our recent experience with the DNRC——

Senator BAUCUS. Is the problem just the act per se or is the problem that the act, in your judgment, is too cumbersome and too burdensome? What I'm really trying to ask is whether in your view you think it's proper for the State to set up a reasonable siting procedure, but nevertheless that there be a siting procedure so that Montana citizens, through it's Department and the Board of Natural Resources, can make some decisions as to whether or not there should be a facility, and if so, where it should be sited? Is the problem that there should not be an act at all, or is the problem that this act tends to be a little bit too burdensome and too cumbersome?

Mr. ANDERSON. In my judgment, there should be an act, but there should be one that incorporates a lot more commonsense and substantial requirements.

Senator BAUCUS. OK, I understand that.

Mr. ANDERSON. This one is extremely burdensome and it has been developed by people that don't even know what they're asking.

Senator BAUCUS. If that's the case, let's assume that the act was, in your view, more reasonable. Then in your judgment would it be proper for BPA to comply with it or not? Is there any difference between BPA and Montana Power complying, assuming the act is reasonable?

Mr. ANDERSON. No, it would not if it was in contravention to Federal law, no, and I would not be in favor of a congressional change in it.

Senator BAUCUS. Why would that be—if the act is reasonable, hypothetically, now we're talking about the act being reasonable. We've hypothetically amended the act so in your view it's reasonable. So if Montana Power would apply to build its lines it would be reasonable as far as you're concerned in Montana Power's application. If that's the case, why would it not be also reasonable to ask BPA if it wanted to build a major facility to also comply with the act?

Mr. ANDERSON. I don't think they should be required to comply with it if those things were done because of the added cost in the ways it would be imposed by complying with such an act, and I point out once again our western Montana cooperatives experience with the DNRC on the Kootenai River project. That's a prime example of what I'm talking about.

Senator BAUCUS. Well, I'm assuming the act is reasonable and the DNRC is reasonable from our point of view. Then would it be all right in your judgment to require BPA to comply?

Mr. ANDERSON. No; it would not.

Senator BAUCUS. Why make a difference between BPA and a Montana utility?

Mr. ANDERSON. I think there's a big difference between a Federal agency like Bonneville and the Montana Power Co.

Senator BAUCUS. What's the difference?

Mr. ANDERSON. I think there is necessarily an oversight involved with congressional and the executive branches of the Government now, as well as the judicial branch, if you will, that absolutely do not affect private parties like the Montana Power Co.

Senator BAUCUS. So you feel—and I'm teasing you now—contrary to the views of most of us in the State that Uncle Sam can protect Montana better than the State of Montana can protect Montana?

Mr. ANDERSON. No; I think BPA can provide a service better and more dependable and we have the advantage in the supply of the electricity, much more dependable, much more reliable and we don't have to go over and fight with them just trying to get them to prop up a 60-year-old transmission line when we've got this service.

Mr. MASON. I might add one other thing, Senator. Last Friday we met with the Department and we were very encouraged about their attitude to update their rules and regulations regarding the Major Siting Act.

Senator BAUCUS. They are trying to modify and streamline. I've heard that too and I hope they do proceed in that direction. My personal view is that the act is a good act. The theory and purpose of it are very proper and necessary. I also tend to think there are excessive delays. I'm not at a point to know which delays are caused by the State or if they're caused by, say, the power company or others. Nevertheless, there have been too many delays and we have to find some way to speed up the process. I don't think it needs to take as much time to make decisions as it has in the past, and regardless of whether the decision is to build the facility or whether the decision is not to build the facility. We just have to make those decisions much more quickly, particularly in the interest of certainty and predictability. Thank you both very much. I appreciate your coming.

Mr. ANDERSON. Thank you.

Mr. MASON. Thank you.

Senator BAUCUS. Next is a panel of 6: Rick Lacey, Phil Barrett, Paul Smith, Arnold Rieder, Adele Furby, and Lee Tavenner. Arnold, why don't you lead off here.

STATEMENT OF ARNOLD RIEDER, HELENA, MONT.

Mr. RIEDER. I really hadn't intended to testify, Senator, but in view of some of the things I've heard here, why, I felt that perhaps I should say a few words.

I lived in the Boulder Valley right where the powerline is coming through. In fact, the original centerline was right over the middle of our house, so you can see why we were really concerned. The first we knew of it was when a map started floating around Boulder that showed the centerline coming across our irrigated valley and over our home.

I've attended about 30 of these meetings, I believe, all the way from Missoura, Boulder, and back, and one of the questions that keep coming up is why is Bonneville building this line; why has Montana Power quit over there? And everytime, the same answer; you've heard it here today. They blame the Indians. Well, I've got four Indian friends I drink coffee with once in awhile in the morning. They're really worried about this. They'll take credit for Custer's massacre, but they don't want to take credit for Bonneville building this powerline.

As you know, it's about 150 miles from the Missouri River in Broadwater County to the Indian reservation, the Flathead Indian Reservation, and it costs about $2 million to build 3 miles of this powerline.

When you figure that up, it's about $110 million that it's costing the Government to build this line for a private utility. This is difficult to explain.

The power company says we weren't misled on any of this. Why did they keep telling us that the Indians stopped us from building that powerline? I think it's a gross misconception. They could have built that line to, as far as the reservation and then given it to Bonneville, and then to aggravate the thing further, they won't—you're familiar with the entitlement program that Congress is always talking about and that they're obligated to pay. Here the taxpayers of Montana actually are giving the power companies an entitlement of from $3 to $7 million a year for the life of this project. That will go on forever. But this just is hard to explain to our people.

Senator BAUCUS. At that point I would ask you your reaction to the prior testimony we just heard very much in opposition to payment in lieu of taxes; that payment in lieu is going to force up rates. I can understand that argument, and I'm curious what your response is to that.

Mr. RIEDER. Well, in payment in lieu of taxes, I remember during the last session of the legislature there was a bill in to tax the power from the man over here at Drummond, Manley, Senator Manley had a bill in and I notice the president of the Montana Power Co. says he's in favor of payment in lieu of taxes. Well, what he was going to do was tax the power which was the private power company's power, and I can assure you that the Montana Power Co. called out all their horses to defeat that bill in the legislature, so they evidently have had a change of heart there. So the final thing that we're up—and they're working on it over there. We're getting—I'm lucky they changed the powerline and we're not going to have any powerlines on our land, but we're going to have some access roads. My neighbor, unfortunately, is going to—he's got such a big ranch they can't avoid him and he's going to have a lot of power—a lot of towers, but the final result is we along the powerline will get absolutely nothing. We'll just get the towers, and I'll tell you the young generation that is trying to raise a family there under those powerlines and work under them, I don't think it's fair. That's all I've got.

Senator BAUCUS. OK, thank you. Rick?

STATEMENT OF RICHARD H. LACEY, CHAIRMAN, UPPER CLARK FORK VALLEY PROTECTIVE ASSOCIATION, DRUMMOND, MONT.

Mr. LACEY. First of all, I thank you very much. Senator Baucus, for allowing us this opportunity as private landholders to speak and give an accounting of our experience with the Bonneville Power Administration. I'm Richard H. Lacey, a rancher from Drummond, Mont., and chairman of the Upper Clark Fork Valley Protective Association.

Two years ago this spring my family was visited by personnel from the Bonneville Power Administration. Among those visiting were Ron Rodewald and Frank Wirth, both engineers with the BPA. At that time their purpose was to explain rumors we had heard that the BPA would construct a new powerline through the valley on the remains of an easement containing a 230 kV line purchased in the early 1950's.

They explained that the line was necessary to carry power to Portland and the Northwest, and that very little would actually remain for use in Montana. However, they did emphasize that we had to pay our dues for the power we used in sprinkler irrigation and other ranch power. They also left no doubt that there would be no alternatives to this route.

After they left, our family discussed the ramifications of a massive powerline bisecting the land and the implications it would have on our day-to-day operations, particularly with the sprinkler line work, calving and breeding areas. Also concerning us were their comments that we might receive electric shocks from equipment, fences and sprinkler irrigation pipes that were located parallel to the proposed line. The most nagging concern was the fear of the unknown; the fear of a constant radiation from the lines over a period of a lifetime from constant work in their proximity.

My father's first reaction was that the Feds would always have their way, the easement was already theirs and if they needed more they could use eminent domain laws to take it. In other words, why argue. He also felt that with their talk of obligations and paying dues, they might make it harder on us if we didn't cooperate.

As I visited with my neighbors about the implications of such a line, their initial reaction was similar. They felt that if it was Montana Power, we could maybe stop them, although historically the courts in this State have invariably sided with the utilities. But it was considered hopeless to take on an agency of the U.S. Government.

During the summer of 1980 an event occurred which changed my approach to the problem. I was beginning to believe these skeptics, but at a meeting in Deer Lodge monitored by WETA [Western Environmental Trade Association] I saw the first evidences of the BPA and Montana Power alliance in action. This meeting, which was to have been a chance for landowners to air their grievances became a podium for BPA to once again explain the fact that they had an existing easement and planned to use it. I'd also like to in all fairness state that several others did have a chance to testify, including Toni Kelley who spoke this morning. At this time they, through their spokesman, Gordon Brandenberger, told us that they had written letters to several thousand landowners along the route notifying them of the proposals and of survey crews that would be surveying the existing easement.

At this moment, I became a "born again" powerline opponent. When I specifically asked who the notices had been sent to, I was given the answer that we've all begun to hear more often: "I can't figure out why you weren't notified, everyone else was." After the meeting I went up to Mr. Brandenberger and asked about our valley and the effect the easement would have on the siting of the new line. He told me that there was no way consideration would be given to any alternatives. So here we are 2 years later with several alternatives to a project that was supposed to be cut and dried. So what happened?

As I just mentioned, the stonewalling and bulldozing approach of one of BPA's original spokesmen, plus the anger of a few stubborn landowners who refused to abide by the systematic approach of confiscation followed in other areas of the United States, all acted as catalysts to bring about a change in the approach BPA took in dealing with the public.

Instead of hearing only from a solid bloc of environmentalists lobbying for the wildlife cause, this Federal agency heard from a suddenly aroused and organized coalition of landowners, ranchers, farmers, and rural residents who haven't traditionally felt it necessary to stand up and be heard. The priorities were not first the pristine wilderness, but the ultimate health and welfare of children, baby calves and a naive rancher who might get a severe or fatal shock if he should touch the wrong thing while standing near a line.

At this time I'd like to digress from what I've submitted for the record just to point out to this gathering the timetable that took place. We were told that fall in August—in July or August—in the Deer Lodge meeting that there would be no action taken on any alternative routes. After speaking with our office, through the work with one of your administrative aides, Kayle Jackson, we arranged a meeting with the Bonneville Power Administration the last week of December in which we got together the residents of our valley to meet with the Bonneville Power Administration in discussing powerline alternatives.

A week prior to this we had had an organizational meeting where we organized the Upper Clark Fork Valley Protective Association.

In the December meeting, we organized. During that meeting, we found out from your office and we got a commitment from Bonneville Power Administration that we would be kept in touch with what had to be done, that we could expect to receive communications from them regarding powerline progress. We waited a couple of months before we got much feedback, and during this time, your office had been told that we were being kept notified, and it was during one of the conversations that I had with Kayle Jackson that he received at the same time at the same moment I was on the phone with him, with his telling me that Bonneville Power Administration had said we were being kept in touch and we hadn't been contacted. He also had a phone call from a man in Washington, D.C., working with the Bonneville Power Administration at that same moment telling him that we were being kept up to date. This was probably the single most obvious evidence to me that some double talk was taking place. It was a very short time after that that you met with the new acting administrator, Mr. Dilby, and we were kept up to date on a week-to-week basis letting us know what progress had been made. Shortly after that, we had a meeting in the spring, which I'll be getting to.

In addressing this committee, though, it's my concern that you understand it took a group of ranchers plus the help of their congressional delegation to come up with any alternatives to the original proposal. BPA has indicated in recent comments that what was to become just another powerline has become their first priority and cause for concern. I submit that if the approach had been altered and rules followed as well as a more empathetic group as frontrunners from BPA in public comment sessions, much of BPA's frustrations at this point could have been avoided.

For example, why should a U.S. Senator have to come out and act as our facility siting enforcer? When Senator Baucus came out to Montana in the spring of 1981, we had no alternatives but a highly illogical crossing to the north of this valley. After 2 days of reviewing possible alternatives, you stood with Mr. Jerry Frick, project engineer from Portland, Toni Kelley from the Deer Lodge group, and a couple of other ranchers and myself, and asked why the substation at Gold Creek had been sited where it was.

Mr. Frick said it was most logical from an engineering standpoint. When asked why it couldn't be moved, he said, "I suppose it could." From that point we've had some progress. A few local residents pointed out a location 3 miles to the southeast. This was April 22. By May 20 I was flown over the Gold Creek valley with the BPA engineers to review a new proposal for substation as well as a route to the south bypassing our valley. I asked Mr. Lou Driessen and his associate, Frank Wirth, both engineers specializing in siting locations why it took a U.S. Senator and a group of ranchers who knew nothing about engineering to come up with a route that was admittedly better in most respects. They answered that in their work the first consideration can't be convenience. They stated that just as in private industry, cost is a major factor. If they recommended a line that was practical for a few ranchers, it would greatly affect the cost of the line and this would be an injustice to the ratepayers.

I suppose they were telling me that if their first concern was with the nonengineering aspects of locations, such as esthetic and human nervousness over the unknown rather than with economics, they would be out of a job. I concede that if a private utility such as Montana Power were building this line their first concern should be to the ratepayer, not the stockholder as it is and has been and probably forever will be, and not to the convenience of the landowners. But where a Federal agency is involved, there should be a different set of criteria.

Thanks to some power in Washington for getting out some of these priorities rearranged. We did have more emphasis placed on agricultural land than has heretofore been. We did have more concern for avoiding populated areas. We have had better public relations, but they can be improved. However, when you come from a negative five to a positive probably six by now, there's still some progress yet to be made. Now, I haven't dealt with the specifics of the agricultural impacts as they were a matter of record in the EIS. I felt this means of personal example was necessary both to show the progress of the BPA in dealing with the public and to point out a few areas that I feel are in additional need of explanation and improvement.

Senator BAUCUS. Thank you very much, Rick. I want to compliment you on your statement, and also on your success. You've done better than most in encouraging BPA to change its lines or, as you pointed out, the substation. We're going to utilize you in the future and use your talents and services to get BPA to be more responsive to Montana's needs. I appreciate your statement very much. Paul, want to go next?

STATEMENT OF PAUL B. SMITH, ATTORNEY, REPRESENTING NORTH BOULDER PROTECTIVE ASSOCIATION

Mr. SMITH. Thank you. My name is Paul Smith and I'm currently a resident of Boulder, Mont., an attorney practicing law there. My grandfather came to the Boulder Valley in 1864, Con Smith; and my parents still currently ranch there. Some of the BLM land and Forest Service land that the route is going across our ranch runs cattle on.

I'm here today, however, representing the North Boulder Protective Association, which is a group not of wildlife environmentalists, but a group of ranchers, senior citizens, businessmen, high school students, teachers, what have you, that are very concerned with the process that BPA has been perpetrating on them regarding this project. Like all Montanans, I feel that the land is part of you, the land that you live on and become familiar with becomes part of you. I feel that the abuse that the BPA has done through their process is not only affecting the land, but the people.

One of the most serious abuses was brought out very succinctly by Dusty Deschamps and that is the notification that the people who were going to be affected by this powerline were given. Now when the BPA initially stepped into the project to do an EIS, as Mr. Deschamps pointed out, it was under the auspices that they were simply going to be looking at the private utilities building the line. The large TER that they had done or were in the process of doing, and the initial EIS was based on this set of facts; a private utility was going to be building the line.

There were very few pages, perhaps six, in these huge reports that even talked about the BPA building an alternative. When notice was sent out, it was sent out to the large newspapers, such as the Missoulian and in larger cities. There was no notice given to the smaller communities in their newspapers or to the affected landowners. Now under requirements, Federal requirements, it's discretionary upon the Federal agencies to give such notice. BPA chose, however, not to use that discretion and not to give notice to local newspapers or to the local landowners, and the provision that I'm citing is 42 CFR 1506.6.

I believe that that should be changed. I think that that should not be discretionary, that local communities should be given notice through their local newspapers and the local affected landowners should be also given notice prior to the Federal decision to build the route or where it's going to be built. The reason for this is that it's these small communities that are most affected, at least by this route. However, no notice was given until after the decision had been made.

Once the decision had been made, it simply became a justification process to say why we are building this in your community and justifying the reasons and meeting the objections, but there was no input prior to that. Another policy that BPA has adopted is the one utility policy, and I believe that smacks of Federal preemption, especially in a project such as this that is essentially a private utility project, but they want to come in and say that even though it's a private utility project that they can come in under Federal laws and preempt all State, local and citizen input because of the Federal legislation.

The scenario that develops is that Montana lands are disturbed to dig the coal; Montana skies are disturbed to burn the coal; Montana's Facility Siting Act is disturbed by Federal decisionmakers deciding where the transmission lines are to go; Montana's high unemployment rates is disturbed by out-of-State, nonunion construction firms doing the majority of the work; Montana counties' tax bases are disturbed by a Federal agency building the line instead of a private utility, all for a project where the majority of the energy is to be used out of state, and BPA wonders why Montanans are disturbed.

There is currently litigation with the BPA to define what the force and affect of the substantive standards are in the State's Facility Siting Act. At the very least, in the spirit of this supposed New Federalism, I would think that a State would have a right to say where the lines are going to go across their State. It's not a question of whether or not the project is going to be stopped in its entirety; it's simply a matter of where they're going to be located, and, along those lines, I believe FLPMA, the Federal Land Policy Management Act, should be clarified along the lines of the Federal Clear Air Act (42 USC, section 7418) the Federal Water Pollution Control Act and the Federal Solid Waste Disposal Act.

Surely I believe that a State has as much right to say where a transmission line is going to go across its lands as it does as to the air and waste disposal and water rights within the State. I don't think that it's a matter of preempting the supremacy clause of the Constitution for the State to be able to say where in its borders a line is going to go. Another ambiguity that arose, of course, is the question that's been hashed around and that is what the authorization of the congressional statute really meant.

As Dusty Deschamps pointed out, it was merely to integrate the Bonneville Power Administration grid with Colstrip 3 and 4. Now the reason or the purpose behind the congressional act supposedly was that they could not get across the Flathead Indian Reservation. Why then is the line going beyond the confines of the Flathead Indian Reservation? That has never been resolved. The purpose of the act should have been set out for that, and that's where it should have gone. Now, of course, the BPA is saying that they don't have the authority to go across the Flathead Indian Reservation. That's about a $108 million mistake. If they didn't have any authority, why did they go to Congress in the first place, or backup authority from Congress to have the line built by them.

Again, I think the testimony by Mr. McElwain that we had a State approved corridor, which they were the ones who backed, that went across the Flathead Indian Reservation, why did they choose that corridor if they foresaw that problem? Clearly they should have had more foresight in selecting a route or asking the Department of Natural Resources to approve a route if they were going to encounter such a large problem with the Flathead Indian Reservation.

At the very least, as far as the congressional authority is concerned, there's nothing in it that I've been able to discover as to any cost of the project. In other words, when Congress gave authority, there was nothing in it that I saw that said, "Yes, this project is going to cost $109 million" or whatever. I believe that at the very least Congress should have the right to see what the project is going to cost before it's approved and at the very least should know what the terminus points of that project are going to be.

In their briefs in some of the lawsuits, the BPA has said that in their mind they have the discretion to build it all the way from the western border all the way to Colstrip under that congressional authority; that they have no limits except their own discretion, their own Federal decision as to where they were going to build. That, I think, brings us to a point of the saying if you don't control the purse strings you really don't control what decisions are going to be made to expend out of that purse. Right now with the revolving fund and the way that the BPA is set up, they make the decisions as to where, when, and how they're going to build and how much they're going to build, and they can interpret congressional authority that merely states to integrate meaning almost anything.

I believe that if the suits that are now pending do not resolve this problem, that the Congress should take immediate steps to resolve that and set out some clear and definite guidelines as to Federal projects. Another abuse by the BPA in this project has been its consistent use of a bootstrap-type argument.

On the one hand, we have heard testimony by Peter Johnson this morning that as to conservation and as to alternative energy resource programs, that they're sort of curtailing those at the moment because there's a surplus. However, in their arguments on the Colstrip 3 and 4 project, they state there's a dire need to not only have that project, but to have it on line by October of 1983. The two are simply contradictions of each other.

If there is a surplus of energy, which has been demonstrated this past year and demonstrated by Montana Power shutting down their plants this spring and demonstrated by the economic depression that we're in at the present time, there certainly is not a need to have these transmission lines on line by October of 1983. The reason I bring that up is that this is a constant argument they use for not giving an adequate consideration and study to alternatives; not that the project may not be needed entirely in the future, but that it has to be done right now.

I concur with many of the other people who have testified that the Northwest Power Planning Council should have more power than it does right now. We have seen what BPA can do to merely suggestions. As it stands, the Northwest Power Planning Council merely can suggest or recommend plans, but it has no force or effect or remedy to see that they're carried out. Mr. Johnson testified this morning that one of the things we should really judge the BPA by is judge them by their actions, not their words; that's what really counts. Now on July 28 of this year, the words were with the State land board that they would abide in principle by the substantive standards of the Montana Major Facility Siting Act. The only matter of controversy at that time was the Missouri River crossing.

I would like to point out a couple of specifics at this hearing that the standards which they agreed to which were part of the contractual agreement, what has happened as far as their actions are concerned. One of those standards which are from the Montana Department of Natural Resources states,

> Prior to beginning construction of a line, BPA's field representative and the contractor shall meet with local officials and service providers in each affected community to advise these persons of a temporary increase in population, when the increase is expected, and where the workers will be reporting in or stationed. Maps of the line and access road must be available so that service providers can determine where and when any problems could arise.

On a Thursday afternoon, the BPA officials called several of the Jefferson County officials and stated,

> We're going to have a meeting in your community tomorrow, on Friday. On Monday, the following Monday, the construction crews are going to come in.

On that Friday they came out and they met with the local officials. They had no information as to the number of workers that were going to be in the area, how long they were going to be in the area, how many children, whatever, were going to school, no information. They had no maps as to access roads. They had no information as to a security plan or as to a fire plan.

All these things should be done before construction. They simply advised the county officials that we'll be working with you on these in the future. To date, nothing concrete has been signed or no plan has been submitted; simply that the construction process is ongoing right now and the local county officials are in a situation where they have to meet these needs within their own budget and security and fire plans or whatever, with no information or no concrete information given by the BPA. Another provision of that construction standards were that, "Construction of new roads shall be held to the absolute minimum reasonably required to construct the facility," and

> The location of access roads and towers shall be established in cooperation with affected landowners and landowners concerns shall be accommodated wherever reasonably possible.

Again, these are words; what are the actions? The action is that BPA had already determined where the access roads were going to go. They had determined those a long time ago. They had not given any notice to the landowners of these roads. They had simply trespassed on private landowners' property, and I've met with them and know that they have done this, to decide where their roads were going to go, and after that, they filed their condemnation suits. They offered contracts.

As far as negotiations were concerned, it was accept these or else, and issued their condemnation proceedings, and the only way that you could fight that is with a lawsuit. That is their idea of meeting every reasonable request of the affected landowners. I have been involved in a lawsuit which has been terminated against our interests because of Judge Battin's ruling, but I think it points out that in the process that BPA used that they had no concerns to really come and meet with affected landowners prior to making their decision.

I feel that another area that the Congress should address is the area of access roads. At the present time, these are not even mentioned to any degree or location in the EIS or whatever, yet they're an area that seriously affects, perhaps even more transmission lines, they affect the community. There are a large number of access roads that go up to the corridor, yet there has been no public input, no studies, nothing done prior to the BPA's making its own determination as to where they should go. As to this, the Federal condemnation laws are fairly strict.

Once the BPA has the authority from Congress, they make the decision as to whether or not they have followed the NEPA requirements or the facility siting requirements or any other local standards, and there is no input or no way to challenge their decision. They are the sole and discretionary decisionmakers as to taking on the condemnation. I believe that Congress should address this, particularly rule 71 of the Federal Rules of Civil Procedure and section 258 of the U.S. Code concerning the authority of BPA and Federal agencies to condemn and take land.

Another point that I'd like to bring out is we heard testimony that BPA is certainly cooperating regarding affects it might have on the community, for instance, the elk study that they're going to do. They're going to expend $100,000 to, I guess, decide after the fact whether or not the transmission lines and the corridor is going to affect the elk. I would think that if the project was going to make any sense at all, that you'd make some sort of decision before the project, not afterward when the access roads and powerlines are in there. There probably won't be any elk to study in that area, so how are they going to conduct a study.

Another issue that arose today was the payment in lieu of taxes and the co-ops were testifying that would be an undue burden upon the ratepayers. It was at least my understanding that any payment in lieu of taxes would be spread out over the ratepayers throughout the entire Northwest and that if there were 15 meters per mile in the Washington and Oregon area versus 2 meters per mile in the Montana area, that the ones in Oregon and Washington would be paying a larger share, which they should be if they're using our energy. Another problem that I would like to raise before the hearing here is that we're caught in a dilemma right now as far as conservation and alternate energy resources are concerned.

Any programs that develop those, we have found out, tend to diminish the number of people or the rate of use of fixed capital large energy plants. The result of that, of course, is that the ratepayers are faced with increasing costs or increasing rates because of distributing it over a smaller base. I think something has to be done to justify using alternative energy sources and conservation sources so that the ratepayer is not stuck with the proposition that if he conserves more or if they use alternative energy resources, that their rates from fixed energy capital plants is going to skyrocket.

I want to thank Senator Baucus and the Judiciary Committee for having this hearing, and also for the staff and letting Montanans express some of the problems that they see are major as far as the project is concerned. I would add one more thing that I covered in my testimony, in my written testimony, and that is I believe the Northwest Power Planning Council should have hearings in the small communities that have been affected and from that they could gather information as to what the practical problems are concerning projects such as the one that we are faced with.

Senator BAUCUS. Thank you very much, Paul. Do you want to go next, Adele?

Ms. FURBY. Yes.

STATEMENT OF ADELE FURBY, CHAIRMAN, GRANITE COUNTY ALLIANCE

Ms. FURBY. My name is Adele Furby and I'm chairman of the Granite County Alliance, and I want to thank you for this opportunity to speak today. The Granite County Alliance is an organization formed in January 1982. It currently has about 60 active members. Most of them live in the Maxville and Hall areas of Flint Creek Valley. The large majority of the people who live and work in the Maxville area and have property which would be affected if BPA constructed the powerline along current proposed routes are members of our organization.

One of the main goals of the Granite County Alliance has been to participate in an establishment of the centerline in our area which would be the least objectionable environmentally and also the least objectionable for the residents and property owners. It was clear to us from the beginning that the route proposed by BPA was one of the worst possible routes that could have been selected. Granite County, a large county, with a population of about 2,500 is very thinly populated. And yet BPA has managed to site a powerline less than one-fourth mile from the fourth largest population center in the county. We recognize that communities from Colstrip to Spokane have been agonizing over the dilemma of where to site this line, so we are not alone, but we do have a unique situation in the Maxville area in that immediately south of the town the land is almost 100 percent Federal land with no permanent residents for 9 miles. We believe that the least objectionable route could be found in this area.

On April 22, 1982, BPA held its public hearing on the draft environmental impact statement in Philipsburg. At that time, six members of the alliance presented prepared statements on behalf of the alliance. I am submitting these statements to you today in written form. They cover the following subjects:

(1) the inadequacy of the factual data in the EIS pertaining to our area;

(2) the dismal public involvement done by BPA in our area;

(3) the socioeconomic factors not dealt with by BPA;

(4) the mitigation measures we consider necessary if a line is sited;

(5) a presentation of the Corridor E, a corridor south of Maxville developed by the alliance which we have proposed that BPA use in siting the line and a comparison of Corridor E to the BPA route. This comparison, using BPA maps and data, shows that corridor E is superior from the standpoint of hydrology, wildlife, land use constraints, acquisition costs, mass movement potential, big game sensitivity, forestry, erosion susceptibility, recreation and cultural resources.

(6) the inadequacy of the methodology used in the EIS. Because of the length of this testimony, I will not read it in its entirety. What it shows is that the evidence is overwhelming. The Bonneville Power Administration is a perfect example of the Federal Government bureaucracy gone amuck. BPA is guilty of the grossest possible misinterpretations and manipulations of Federal and even State law and small communities like Maxville, St. Regis, Gold Creek, Huson, and Superior are its victims.

Following that hearing, Mr. Jerry Frick, project engineer, approached us and asked that we get together with him to discuss the situation. He admitted at our meeting that the draft EIS was totally inadequate in our area and promised that the BPA would take our suggestions seriously for developing a possible route through our corridor E. We have been attempting to see that Bonneville holds true to that promise ever since, and I'm sorry to report that we have gotten absolutely nowhere. Bonneville has continued to use the same sleazy tactics in order to attempt to keep us from our goal of siting this line properly. We have made and will continue to make a good faith effort to see that this thing is done properly, but we don't hold much hope.

I could take the rest of your day outlining to you the problems that we have had since April dealing with BPA and I would be glad to fill you in with all the gory details if you so request, but that is not the main point. The main point is that we want to get this line sited properly and in the proper location and we are willing to go out of our way to do so. We know the country, we know the people, and we know what needs to be done. We earnestly seek your help in absolutely insisting that Bonneville do this job right, and in that regard, we are at your disposal.

Senator Baucus and members of the Judiciary Committee, an entire ream of new "organizational, procedural, or substantive policy changes at BPA" is not going to be likely to keep the towers from marching through our town. Changes in the Northwest Power Planning Council's role are not likely to either. The point we are trying to make is that while you are holding hearings and discussing new regulations, the BPA keeps right on invading Montana. BPA claims to welcome public input, but when it gets it with an obvious message loud and clear, BPA scorns or ignores it.

In summary then, we are currently faced with a situation where the BPA is abusing its power at the expense of the citizens of the State of Montana. It is clear that means must be found whereby BPA is brought in check, but meanwhile, something must be done about the immediate problem at hand. BPA must be stopped cold in its tracks until proper methods of control have been devised and established. Therefore, the Congress should order an immediate freeze on all BPA activity involving the siting and construction of a Colstrip to Spokane twin 500 kV transmission line. In light of the current decline in the rate of growth of electrical demand, this would place absolutely no burden or risk on electricity users. There is plenty of time to do the job right, if it is indeed determined that it needs to be done at all, and we should tolerate no double talk from the heads of BPA who are constantly attempting to maintain that power outages are just around the corner. The facts simply do not bear them out.

Gentlemen, the evidence on BPA is undeniable. So now it is up to you. The Congress must place a freeze on BPA powerline activities in Montana immediately. A new system of strong, enforceable controls on BPA must be implemented. Equally important, a strong national need for BPA involvement in building a powerline on behalf of a private power company interest must be established before BPA should be allowed to build this line. Thank you.

Senator Baucus. Thank you, Adele. I assume your statement is in conjunction with Lee's, is that right?

Mr. Tavenner. I have another statement.

Senator Baucus. Why don't you give yours now then? Go ahead.

STATEMENT OF LEE TAVENNER, ASSISTANT CHAIRMAN, GRANITE COUNTY ALLIANCE

Mr. Tavenner. I'm assistant chairman of the Granite County Alliance. I'd like to thank you, Senator Baucus, for scheduling this hearing. Resistance to this powerline is widespread. The outrageous behavior of BPA is well documented and bitterly resented in this State. This powerline and its associated powerplants and inevitable future powerlines will cause such impact to the Montana environment and will so upset our Montana way of life that even the most ardent of growth advocates must gaze in their crystal ball with alarm and dismay.

With respect to the law, BPA has violated the spirit of the law repeatedly. BPA has assaulted the Montana Facility Siting Act; it has totally reinterpreted congressional authorization; it has stretched all the reasonable understandings of NEPA and it has utterly ignored the issue of need. BPA pretends that establishment of the Missoula office and a toll-free number should somehow overshadow its grab for power, but as Mr. Johnson said this morning, actions do speak louder than words, and BPA's actions speak for themselves. The basic need of further legislation is to force BPA to follow the present spirit of the law.

The essential principle of condemnation of land for powerlines is the public need. Without public need, there are no condemnation powers for private or public utilities or public entities. This powerline absolutely depends on condemnation of an entire strip of land across most of the State of Montana, and yet none of the agencies involved has ever addressed the issue of need for this twin 500 kV, 5,000 megawatt powerline.

CERTIFICATE OF NEED

In 1976 the Montana Department of Natural Resources recommended against construction of Colstrip 3 and 4. By a 4-to-3 vote, the Board of Natural Resources overruled the Department, but the resultant so-called certificate of need never discussed or analyzed the amount of power needed, the size of the powerline needed, the existing loads, the location of the loads or the existing transmission capability. The data in the certificate of need is not sufficient to establish need for any transmission at all, let alone the need for a twin 500 kV, 5,000 megawatt powerline. What information was offered in 1976 was based upon a different location, a different builder and a different tax situation than the current line.

BPA's Garrison to Spokane twin 500 kV powerline environmental impact statement dismissed need in one page without backup data. There was no discussion of amount of power needed, size of powerline needed, existing loads, location of loads or existing transmission capability.

Although the reason for having an EIS is to assure minimal environmental impact, BPA did not establish a need for any environmental impact, nor did BPA establish or even discuss the need for a line of 5,000 megawatt capacity. BPA did not discuss any smaller powerline alternatives, even though the National Environmental Policy Act directs an alternatives comparison approach to EIS preparation. Clearly such blatant avoidance of the need issue violates congressional intent in NEPA.

Judge Battin's rulings have centered around whether State or Federal agencies have authority in the matter of this powerline. His complex rulings have missed the essential point that without establishing public need, no agencies, either Federal or State, have the authority to condemn land for powerlines. Although legal manipulations may mask this governmental intrusion, the principle of public need being essential for condemnation is well established. Nowhere in Judge Battin's ruling is there a discussion of the amount of power needed, the size of the powerline needed, and so forth.

MONTANA FACILITY SITING ACT

Although need for the facility is the first item on the list of requirements by the Montana Facility Siting Act, the Board of Natural Resources chose to ignore that mandate in reviewing the Townsend to Garrison segment by ignoring the issue of need. The board used Judge Battin as an excuse, but Judge Battin's rulings left plenty of room for discussion for amount of power, size of powerline, and so forth. The board's mandate in Judge Battin's ruling requires the board examine the question of need in relationship to amount of power needed, size of powerline, and so forth.

BPA has gone to great lengths to extend its reach by reference to congressional authority in Public Law 95–482, but that authorization, unclear and controversial as it is, is only for facilities to integrate Colstrip 3 and 4. If Colstrip 3 and 4 can be integrated with a 12-kV line from Hot Springs to East Hot Springs, then construction of that line is the complete extent of congressional authorization. Public Law 95–482 does not excuse BPA or Judge Battin or the State of Montana from addressing the question of need. Rather it instructs all of them to determine the size, the length, and extent of needed transmission to integrate Colstrip 3 and 4.

There is no need for a twin 500 kV, 5,000 megawatt powerline from Garrison to Spokane. There is no need for a single 500-kV powerline from Garrison to Spokane, and under present load conditions, there is no need for another single 230-kV powerline from Garrison to Spokane.

To elaborate, let me examine three interpretations of need. In the first case, let's assume as BPA and Montana Power often do, that need is based on generation capability rather than load demand. If generation capability determines need, then construction of a 5-million-megawatt plant would create a need for a 5-million-megawatt powerline, regardless of whether or not the electricity could be used. To contend that this reflects public need is ludicrous.

In the second case, let's assume need is based on market availability rather than generation capability. The WPPSS plants in Washington were mothballed primarily because of lack of need. If the BPA one utility concept is used to arrange exchange agreements in the Northwest, as BPA's involvement requires, then the west coast consortium shares in the Northwest's lack of need and the consortium must find markets other than the Northwest for its Colstrip power. Including the present 230 kV lines from Anaconda to Hot Springs, there are seven 230 kV lines extending out of Montana with a total capacity of 2,800 megawatts of power. This 2,800-megawatt capacity should be more than sufficient to support the consortium with surplus sales of power, and to contend that an additional twin 500 kV, 5,000-megawatt capacity line is needed is ludicrous. If market availability determines need, then stockholder wealth and public need are equated, and Montana Power's ability to market power determines the public good. Therefore, market availability must not be a determining factor regarding need. The only reasonable measure is load demand.

For the third case, let's assume need based on load demand. If mothballing the WPPSS plants illustrates the lack of need in the area of the west coast consortium, then with required exchange agreements, no added transmission is needed from Garrison to Spokane. Furthermore, with the present load Montana Power can serve this load west of Garrison from Garrison without additional lines, and it does not need to import BPA power from the 500 kilovolt grid, so no additional transmission is needed.

NEED IS TO NOT BUILD

I contend that beyond the clear lack of need for this twin 500 kilovolt, 5,000 megawatt powerline, there is in fact a strong national public need not to build this line. Had the Montana Board of Natural Resources and Montana Power submitted information concerning disturbances to the western power supply grid. Although it was not Montana Power's intention, these reports show most clearly that the larger grid system is extremely sensitive and vulnerable to chain reaction outages. In one example of disturbance, a lightning strike on the Arizona-Utah border caused an extensive outage in the Western States, including a large portion of Montana. In another outage, a minor control problem at Grand Coulee blacked out most of Montana. Some of these outages occurred when the entire grid was lightly loaded and others occurred when small portions of the grid were heavily loaded.

These reports show that the large grid system is vulnerable to failure and the result of even very small problems is very large outages. As the grid system grows, so grows the interdependence, so grows the tendency toward failure and so grows the area and severity of the outages.

This proposed twin kV powerline is a major link connecting West and Midwest power grids in a much larger grid. As such, it is a direct threat to national security both from external sources and from internal sabotage. The public interest shows a clear need not to build this 500 kilovolt, 5,000 megawatt grid interlink.

ROLE OF CONGRESS

The most often repeated complaint is that there is no need for this powerline and that the issue of need has never been addressed. The people of Montana understand that the mandate of their government has been abrogated as BPA carries out a massive condemnation action without any regard, discussion or consideration of need for this huge powerline.

Because of BPA's clever manipulation of Public Law 95–482, Montanans see Congress as coconspirators in BPA's assault on the property right of the State of Montana and its people. BPA has effectively manipulated Public Law 95–482 from the authorization for "facilities to integrate" into an endorsement for a grandiose grid-tie interconnection whose capacity is more than twice the entire output of the whole Colstrip complex. In so doing, BPA has made Congress and every Senator that voted for Public Law 95–482 its errand boy.

I appeal to you, Senator Baucus, and to other members of the Senate Judiciary Committee to set the record straight. Insist that congressional authorization is for "facilities to integrate" and see that the issue of public need is addressed. Preserve the integrity of Federal condemnation by directing the BPA to shrink this powerline down to fit the pubilc need.

I appeal to the Senate Judiciary Committee to direct BPA and the Montana Board of Natural Resources to (1) study and address the issue of need regarding the size and layout of this powerline; (2) developing alternatives using smaller powerline options; (3) hold public hearings on their findings; and (4) revise the transmission line plans to stay within the public need requirements of the congressional authorization and condemnation principles. Thank you.

Mr. BAUCUS. Thank you, Lee. Phil?

STATEMENT OF PHILIP M. BARRETT, MEMBER, CLARK FORK PROTECTIVE ASSOCIATION AND NORTHERN PLAINS RESOURCE COUNCIL

Mr. BARRETT. I want to thank you for the opportunity to speak before this subcommittee today. For the record, my name is Philip M. Barrett. I live at 1537 South 7th West in Missoula. I have been an active member of the Clark Fork Basin Protective Association and the Northern Plains Resource Council for the last 2½ years.

Besides the testimony of this hearing, I request that in its deliberations the subcommittee consult the record of the hearing conducted on August 26, 1982, in Missoula by the Senate Energy and Natural Resources Committee, Subcommittee on Water and Power.

Late in 1977 the Montana Power Co. requested the Bonneville Power Administration to build 500 kilovolt transmission lines to carry power generated at Colstrip 3 and 4 into the Pacific Northwest grid. BPA's building of these lines has resulted in the circumvention of Montana's Major Facility Siting Act and the avoidance of payment of State and local taxes. This is totally unacceptable to the CFBPA and Northern Plains.

We see four avenues of approach to the problem of insuring BPA's compliance with the Major Facility Siting Act in the future. The first is in the courts. The board of the Northern Plains Resource Council has adopted a resolution urging the State to appeal Judge Battin's recent Federal district court ruling that the Major Facility Siting Act has no substantive standards as regards to this case. Coupling that ruling with Judge Battin's March 4, 1982, order requiring BPA to comply only with substantive State siting standards, one can only conclude that the Major Facility Siting Act has absolutely no applicability to Federal agencies.

I submit, however, that in adopting language of section 505(a)iv of FLPMA regarding compliance by Federal agencies with State siting standards, Congress must have had the Major Facility Siting Act in mind and fully intended that the State law should apply in some manner. Judge Battin's decisions fly in the face of this perceived intent. I urge the subcommittee to investigate the intent of Congress in section 505(a) iv of FLPMA to determine if Judge Battin's decisions are consistent with that intent. In that regard, I have requested the attorneys of the Northern Plains Resource Council to prepare and submit to the subcommittee an analysis, their analysis of Judge Battin's interpretation of FLPMA. The second avenue of approach is through the State's laws and regulations. In light of Judge

Battin's decisions, I suppose that we can try to amend the Major Facility Siting Act or change the Department of Natural Resources regulations to include a list of substantive standards. I admit though that I wish I had a better idea of what Judge Battin considers a substantive standard. I shudder at the thought of wholesalely rewriting such a delicately balanced law, however, and hopefully that would only be necessary as a last resort.

The third front is through the BPA's rules and regulations and, to me, is the simplest and most logical. The proposal I suggest would fundamentally change the way the agency operates in Montana. BPA is currently revising its customer service policies, and we would like to see a new policy adopted. We think that BPA should serve privately built electrical generation units only by contracting with the private utilities to plan, build, operate, and maintain new transmission lines. Ownership of the lines would stay with the private utilities, and thus the private utilities would be required to pay property taxes on them. More importantly, though, retaining private ownership would insure that the lines were subject to compliance with all provisions of the Major Facility Siting Act. If this policy had been in effect in 1977, there would be no lingering questions now as to whether Montana Power requested BPA to build these lines to circumvent State laws or simply to take advantage of the agency's expertise. Obviously BPA and the investor-owned utilities will resist this plan, and we would like to enlist your aid in pressuring BPA to make the change.

The final approach to this problem is in Congress. If BPA refuses to adopt the policy changes just outlined, Congress should adopt legislation directing the agency to do so. Alternatively, Congress might adopt legislation requiring BPA to (a) make payments in lieu of taxes for transmission lines primarily serving privately built generating resources, and (b) fully comply with all provisions, substantive and procedural, of State siting laws. We heartily encourage the subcommittee to support such legislation.

Thank you again for the opportunity to address the subcommittee.

Senator BAUCUS. Thank you very much, Phil. I have a couple of questions, particularly for Paul going to the supremacy clause.

You mentioned earlier, Paul, you feel the supremacy clause does not require BPA or the court to find that BPA need not comply with State law. I wonder if you could expand that a little bit. What leads you to that conclusion?

Mr. SMITH. One of the reasons, Senator, is that, in this instance, I believe we're not talking about terminating the entire project, but simply whether or not a State has a right to state where the line or transmission lines or the facility is going to be built within its borders. If it was an entire Federal project, it might have some different aspects as far as the constitutional question is concerned. In other words, if the State of Montana could say thumbs up or thumbs down on the project, you might have a question of Federal preemption in the supremacy clause, but in this instance, I believe that we're only talking about where the facility or where the transmission lines are going to be located, so it's not a matter of the State's being in contradiction to the Federal statutes.

Senator BAUCUS. You're saying where it's in process it's less likely that there's contradiction with the Federal supremacy clause or a requirement for Federal supremacy. This is a very, very rough analogy, but when you were talking, I thought about the way the State of Montana sites highways. It's not the Federal Highway Administration that sites highways. Of course, there's no statute that told the Highway Administration to do so, but nevertheless, the State does decide where those highways are located. So I agree with you.

I think that a State process that doesn't interfere with the final result in one where the State under the tenth amendment or under other lines of reasoning should not be expected to give in to some kind of superiority, and in this case, it's clear that we're not trying to prevent power from leaving Montana to the Pacific Northwest. There is a question of need, as Lee addressed, but once you get past the question of need, the Montana Siting Act is not intended to prevent power from going to the Northwest.

It's more a question of siting transmission lines and some of it goes to the question of need too, but it also goes to the question of location. Do you see any problems, Paul, that might occur if the council were given more power over BPA—any constitutional problems? I don't know if you were here this morning, but some this morning suggested that would violate the Constitution insofar as Council members are not appointed by the Federal executive branch, not confirmed by the Senate, but rather appointed by the State governments; somehow that might run afoul of the Constitution. I'm just curious, if you see that as a problem, and if you do, how that might be tailored or changed to avoid the problem?

Mr. SMITH. I really don't know the legal ramifications of that, Senator, but I think it would be very easily rectified if the Governor did appoint them that the Congress or whatever could either approve or disapprove those appointments. I think it would be easily rectified in that manner if there's a problem with the States saying who's going to be on the Council. Congress or an appropriate congressional committee could approve of the appointments.

Senator BAUCUS. Rick, I'd like to ask you if you have any ideas on how you'd change the general communications process that BPA normally undertakes; in other words, would you modify it in any way, either the notice requirements or anything else that comes to mind?

Mr. LACEY. In the hearing requirements, for example, one of the changes that might take place is that landowners aren't involved in the EIS process. We were given an example this morning that we have representatives of the Salish-Kootenai Tribes called in with the BLM and Forest Service and the BPA as far as agency personnel involved in drawing up the EIS. It's been my contention that these EIS hearings, that there has been no input from private landowners, and of course the EIS being a federally required program to involve Federal lands, we are told that we just aren't involved.

In this particular case, we were involved because we had a 15-mile stretch of line, or further, actually, that went through private land. We weren't consulted. To give you an example, on this last EIS, the entire Flint Creek Valley is considered nonirrigated. Now they said well, this was a printing error. They had put the wrong color ink on the page. Well over a million dollars was spent on this EIS and this was a major populated area, a major agricultural impact area. Yet when we looked at the map such as this one up here and saw the Flint

Creek Valley where I live with a big brown smear on it instead of a nice green one that would indicate irrigated land, all of my neighbors that are involved in the association that I'm working with that got the copy of this expensive document asked me what was going on. It's my contention that if they're spending this much money, they'd better start asking the people that are living on the land and not ask some university professor from Bozeman that they said they had hired as a consultant to tell them what we raised in our valley.

Another problem, statements by the BPA on health hazards. We heard this this morning, and it's the most blatantly irresponsible statement that the director made this morning regarding health hazards, that there's no evidence. I've stood up twice in the hearings in Drummond and point out the evidence, and it is evidence, that comes from the State of Minnesota. The State Department of Environmental Sciences conducted research or conducted a study to see whether powerlines in that State had any impact.

Now whether or not these lines are identical to the lines that we have in Montana, there was evidence. For a person to state there is no evidence is irresponsible, and I would like to see—I thought that we had this cleared up in Drummond, but obviously if it's coming directly from the director, and I don't think that they ever ought to make that statement again, because there is evidence.

As mentioned by Paul, in the EIS there's no discussion of access roads, and the access roads have a greater impact on many operations and in many ranches and many environments than do the lines themselves, so access roads must be identified and addressed in the EIS. Finally, who do we use as our expert testimony. You know, we've got a few people that are kind of rebels in the industry, like Dr. Moreno in New York, that are able to give testimony that most—what are considered responsible energy agencies and researchers, they consider him to be an irresponsible witness or a witness that lacks credibility.

However, who do we use as private citizens to act as our expert on engineering problems. For example, the group from Maxville, wouldn't it be nice if they had an expert that they could go to that would be able to argue with BPA's engineers as to whether something is economically or physically reasonable as far as the siting situation. The same applied in some of our areas and some of the other hard terrain areas, so these are some of the considerations that I'd like to see addressed.

Senator BAUCUS. Thank you very much. We'll take a 5-minute recess.

[Brief recess.]

Senator BAUCUS. Before we get to the next panel of witnesses, I'd just like to compliment all of you on what you've done. You have certainly done a lot to raise the consciousness of Montana concerning BPA's lack of notice and what BPA is and is not doing in the State. I want to tell you that I will do what I can to continue to make BPA a much better citizen not only of our State but of the Pacific Northwest than it's been thus far. As I said earlier, I think they have progressed, they have gotten better, and I compliment them for it.

I have noticed a very significant change in the last several months, and I'm going to work with other congressional officers and work with you to encourage you to work with me as much as possible so that we progress much more quickly. To BPA, too, I have something to say. It is easy to understand from their point of view how it would be much easier not to provide the notice to the landowners and to concerned citizens, to local governments and congressional delegations, to State officials. It is much easier to take a map, draw a line and pull out a calculator and figure out the least costly route, the least costly alternative. There is nothing that could be easier, but the problem is that we live in a representative democracy.

I can understand from BPA's point of view that to provide the notices, to spend all that time talking to landowners, to then spend the time talking to congressional delegations in advance and to States in advance and local governments in advance is time consuming; it's certainly inefficient. There's nothing that could be more inefficient. It's lengthy, frustrating. It probably gives you ulcers. Probably turns your hair white. Some hair might even fall out of your head for that matter, as it does for all the rest of us. But we do live in a representative democracy, and that's one of the prices we pay for a great country. It's some of the process that I go through. It's a process that all our representatives go through. It would be easier for us to pass legislation for what we think would be best for the country, regardless of what other people think, but we are representatives. We represent people.

The same applies to local government officials. It applies to everybody who works for Uncle Sam. All Federal employees serve the public; not the other way around. The best summary I have of the process and how important it is is something Winston Churchill once said, to the effect that democracy, for all of its delays and its fits and its starts and its frustrations and its inefficiencies is absolutely the world's worst form of government, except there's none better. So I suggest to BPA that BPA keep that in mind, that they should almost revel, rejoice in all the fits and all the delays and all the frustrations and all the inefficiencies that public involvement causes and that prior consultation creates.

I don't mean to suggest that BPA should be masochistic about this; I don't think they will be. I do suggesst that with greater appreciation of all those requirements, that most of these problems that we're dealing with today and they won't go away in their entirety, but at least most of them will be not nearly as great nor nearly as abrasive or won't be nearly in the same confrontational mode as they are today, so it's an important thing for all of us to keep that in mind. Thank you all very much for your testimony. I appreciate it.

[The prepared statements and submissions of Mrs. Furby and Messrs. Smith and Tavenner follow:]

PREPARED STATEMENT OF PAUL B. SMITH

My name is Paul B. Smith, I am an attorney practicing law and living in Boulder, Montana. My grandfather Con Smith came to the Boulder Vally to ranch in 1864. My parents Paul and Vivian Smith still ranch in the Boulder Valley on a ranch that lies at the foothills of the Elkhorns south of the town of Elkhorn. The BPA transmission line runs through those foothills, where my family runs cattle. Places like, Dry Creek, Sagebrush Park, Horse Gulch, Water Tank Gulch, Wood Gulch, and Elkhorn Creek are not merely names and statistics on a BPA map or EIS report to me. They are places that I came to know from a back of a horse gathering cattle off the range or on foot while tracking a wily bull elk. Like most Montanans I feel the land you live on and are familiar with becomes a part of you. If those lands are abused you personally feel that abuse. I am here today to testify to the abuse that BPA is perpetrating on those lands and on the people whom those lands are a part of.

I am representing North Boulder Protection Association which was formed by local citizens to oppose the construction of the powerline in the Boulder area. The members are not wild-eyed environmentalists whose sole purpose is to stop progress at any costs. Rather the members are a cross section of Boulder's citizens - ranchers, businessmen, teachers, senior citizens, high school students - who are extremely concerned and outraged with the manner in which the BPA, supposedly an agency of "their" government, has proceeded regarding the powerline.

BPA's first and perhaps its most serious abuse was the lack of notice and information it provided the public prior to the "federal decision makers" selection of the route. The BPA, Forest Service and BLM had apparently been considering absent public input a transmission route from coal generated power in Eastern Montana to the west coast since 1971. In 1976 the private utility consortium obtained state approval for Colstrip 3 & 4 and for a specific transmission line corridor from Colstrip to Hot Springs. At least as early as August 1977 the BPA and the Consortium began plans for the BPA to build a major portion of the line. BPA, as the lead agency preparing a Federal EIS on the Colstrip transmission line at the time sent out a brochure to local governments in August 1977. This brochure according to Ron Wilkerson, the BPA employee in charge of preparation of the Colstrip EIS, was the only BPA contact with local governments during the entire Colstrip EIS process. There was not one word or a hint in this brochure that the BPA was planning on building a large segment of the line. Congress in Section 102 (2) (C) of NEPA specifically has mandated that local governments be provided the opportunity to participate early in the decision making process of federal agencies and be supplied information sufficient so that they can comment. This simply was not done. BPA in preparation of the federal EIS and in the hearings proceeded under the guise that the private utility consortium was building the line despite the fact that BPA had privately agreed with Montana Power to build a large portion of the line and to take the necessary steps to obtain Congressional approval. While the public was hoodwinked into believing the Federal EIS process was simply a federal certification of the already state approved route to be built by private utilities, the BPA was proceeding with a full head of steam to build a large segment of it. A review of the TER and Federal EIS disclose that only a scant few pages even mention the BPA as an alternative builder. The significance of this is that the BPA build alternative is substantially different, 175 foot towers instead of the 60-89 ft. towers of the private utilities, wider access roads, a right of way of 125 feet instead of 300 feet, one line of towers instead of two, towers with direct current capacity instead of only alternating current. Despite these differences the federal decision makers, the Forest Service and Bureau of Land Management on Sept. 21, 1979 made a record of decision as to the route based on the Federal EIS, the methodology and approach of which assumed that the private utilities were building the entire line. More important is the fact that many Montana counties supported the transmission route across their lands because of the prospective tax revenues generated by a private utility compay building and owning the line. This consideration was one of the mandated criteria for need under the Montana Major Facility Siting Act upon which the state based its approval of the state route in 1976. The BPA and federal decision makers never informed the counties of the same 3½ million dollars annual tax loss that would occurr to them by the BPA building the line. During the initial federal EIS process BPA newspaper notification and hearings were confined to a few of Montanas larger cities despite the fact that BPA's planned route would in fact be nearer and more dramatically affect small towns and communities like Boulder and Deer Lodge. It was not until after the federal route had been selected that the small local communities that would be more seriously affected were given local hearings and local newspaper notice. By then the hearings and information consisted of the BPA simply informing the communities about the project and making some adjustments within the route selected by the federal decision makers. Similarly, affected land owners had no notice until after the federal route had been selected. Federal regulations as to notice provide that it is discretionary to give notice to affected landowners and through local newspapers. BPA in their discretion chose not to do so. That abuse of discretion should be rectified by changing federal requirements to make it mandatory that local newspapers and affected landowners be given notice of proposed alternative actions by a federal agency that might affect them, prior to the agency's selection. Absent that the EIS process simply is a justification process whereby the federal agency rationalies and attempts to justify their decision to an objecting public without meaningful public input. The regulations that should be changed to be mandatory are: 42 CFR 1506.6 (b) (3) (iv) (viii)

The second major abuse by the BPA was its selection of a route different from a route previously certified by the State of Montana under Montana Major Facility Siting Act as being the route with the least environmentally affected impact. Although there are some difficult political and legal decisions involved over whether the state or federal government has the ultimate say as to solely federal energy projects and their sites, it should be evident in a case such as this, where private utilities have already obtained state approval for a private project and the siting of transmission lines that the project and siting should not be circumvented by a federal agency. If a federal agency chooses to benefit a private utility by building part of its project that federal agency should be bound by the same laws and considerations that lead to approval of the private utilities project. In this case it would mean either the BPA make payment in lieu of taxes or the private utility make those payments and that the state approved route be followed unless amended by the same procedure the private utility would have had to follow to amend or change the route. The BPA's adopted "one utility" policy smacks of federal pre-emption of all state and local rights in determining where, when and how private energy projects are to be built and where within a state. An energy exporting state such as Montana is left with the scenario present in this case. Montana lands are disturbed to dig the coal. Montana skies are disturbed to burn the coal. Montana's Facility Siting Act is disturbed by federal decision makers deciding where the transmission lines are to go. Montana's high unemployment rate is disturbed by out of state, non-union construction firms doing the majority of the work. Montana counties' tax bases are disturbed by a federal agency building the line instead of a private utility. All for a project where the majority of the energy is to be used out of state. And BPA wonders why Montanans are disturbed.

There is currently litigation with the BPA as to the definition and force and affect of what are substantive standards of a state's facility siting act. At the very least, in the spirit of the "new federalism" a state should have the right to say where a transmission line is located within its borders. The legal battle regarding differences between procedural and substantive standards should be clearly resolved by Congress adopting language in the applicable FLPMA statutes similar to that found in the Federal Clear Air Act 42 USC Section 7418 (a), the Federal Water Pollution Control Act, 33 USC Section 1323 (a) and the Federal Solid Wast Disposal Act, 42 USC Section 6961. Surely a state should have the same authority and control over the lands within its borders as it does air, water and hazardous wastes. The Federal Land Policy and Management Act, Section 505, 43 USC Section 1765 should be so clarified.

The ambiguity in the supposed authorizing statute of this project has been another source of unneeded problems. The supposed reason for BPA to build was that the private utilities were experiencing difficulties in obtaining a right-of-way or easement across the Flathead Indian Reservation.

That being the purpose the BPA should have restricted itself to building the line only across the reservation, not all the way to Townsend and east of the divide. The congressional act for the alleged authority of BPA to build simply states: "the construction of facilities to integrate new generating facilities at Colstrip, Montana and the Bonneville Power Administration transmission grid." BPA has interpreted this to mean that they had specific approval from Congress to build whatever portion of the line they chose even outside the Pacific Northwest and to expend any funds from their own revolving fund to do so (approximately 108 million dollars). BPA asserts that it has the delegated authority to act in such a manner. If BPA prevails in its legal arguments in this matter Congress should take immediate steps to rectify such delegation of authority it has abdicated to BPA. As to transmission lines BPA should be forced to disclose the terminus of the lines and the projected cost prior to Congressional approval. Allowing such control of its own purse strings establishes an agency that tends to create its own projects to justify its continued existence and allows it to become autonomous and distant from the public it is suppose to serve. Without a private enterprise project where the comsumer public determines the feasibility of a project or without Congress appropriating the specific monies for a clearly defined project, the end result are projects like WHOOPS where the ratepayers ultimately ends up picking up the tab for an insulated and isolated public utility. Although the North west Planning Council can become a major step in the right direction it is confined to projecting energy needs and recommending projects. More is necessary in order for the consumer public or ratepayers to be protected from public agencies such as BPA whose self-serving interest is to create additional projects irregardless of the consumer and ratepayers needs and demands.

Another abuse by BPA in the project has been its consistent use of a boot strap type argument. Despite its recent projections of low growth energy needs in the Northwest, BPA insists in this project in using a critical water year basis to project a dire need for Colstrip's 3 & 4 energy in 1983. Most of the delay in the project has been occassioned by BPA's faculty EIS procedure and its refusal to even submit information to the state regarding fulfilling the substantive standards of the Major Facility Siting Act. The BPA then uses its self inflicted delays caused by its own mistakes to pull itself up by its boot straps and argue that time is of the essence and economic considerations should override any consideration of alternatives or procedures that would rectify BPA's mistakes. This of course can be resolved in any future projects by BPA utilizing its own projection forecasts and doing proper planning where the public and local governments have input before the federal decision is made. The Northwest Power Council should see that it does. Additionally, because of their self-imposed time constraints BPA has often in its dealings with the state, local governments and landowners either refused to negotiate at all or if it did, make promises that it has been unable to keep. In obtaining state land easements BPA agreed to abide in principle with the substantive standards of the Major Facility Siting Act. In particular BPA has failed in the Boulder areas to give anything but lip service to the provisions regarding access roads or planning and coordination with local officials. BPA officials telephoned on a Thursday afternoon to inform local officials that they would meet with them the next day, and that the workers and construction in the Boulder area would start the following Monday. At the Friday meeting BPA officials had no information as to the number of workers or families, their length of stay in the area, any maps of the line or access roads, any emergency service plan, any fire plan or any security plan. The BPA officials assured the local people that all of this would be subsequently work out. Although promises and assurances have been made to date nothing concrete has been done. Again proper planning is essential to avoid such problems and develop a working relationship in the affected communities, prior to construction. The Northwest Power Planning Council should adopt regulations similar to Montana's Department of Natural Resources construction standards and oversee the carrying out of them by BPA. If the Northwest Power Planning Council does not have the authority or personnel to see that such plans are carried out by BPA, Congress should grant them that authority and a budget to see that they are implemented.

The Northwest Power Planning Council's Montana members should have hearings in the small communities that have been most seriously affected by the BPA line. Those hearings would provide a concrete source of information to the council as to the many practical problems that small communities are faced with when transmission line projects are forced upon them with virtually no planning and no guarantee of compensation.

The final issue I wish to address is BPA's new role in developing alternative energy sources and a program of energy conservation. This policy becomes a paradox that if not rectified becomes a Catch-22 to the ratepayers and consumers involved. Currently we are witnessing that conservation and use of alternative energy sources by consumers brings higher costs and rates to them for as the use of large capital investment energy decreases the fixed costs of large capital investments in plants such as

Colstrip 3 & 4 and WHOOPS continue to be distributed to consumers over a decreased energy base. By conserving and using alternative energy consumers are faced with higher rates in having to pick up a larger share of those fixed capital costs. The Northwest Power Planning Council must address this problem and Congress will have to enact legislation that will resolve this dilemma in favor of conservation and use of alternative energy sources by giving consumers and existing large capital energy plants the tax incentive and credits to develop those programs.

In behalf of the No. BPA I wish to thank Senator Baucus, his staff and the Senate Judiciary Committee for having this hearing and the opportunity to voice my opinion on the issues involved.

SUBMISSIONS OF ADELE FURBY

RE GRANITE COUNTY ALLIANCE BPA HEARING

Philipsburg, Mont., April 22, 1982

INTRODUCTION

The Granite County Alliance is an organization formed January, 1982, soon after residents in the Maxville and Hall areas became aware that the BPA had plans to put a twin 500kv power line through the Maxville area. The membership list I am submitting with this statement is a list of the individuals who wish go go on public record as making the following statements which are given by representatives on behalf of the Alliance. Furthermore, the Alliance requests that all statements made at this meeting, as well as all comments submitted during the public comment period be fully considered and reproduced in their entirety in the final EIS. No summaries, or deletions should be made.

GRANITE COUNTY ALLIANCE MEMBERSHIP AS OF APRIL 22, 1982

Adele Furby, chairman, Maxville
Lee Tavenner,assistant chairman, Maxville
Evelina Anderson, secretary, Hall
Gordon Foster, assistant secretary, Hall
Dave Hauptman, treasurer, Hall
Corolyn Dennis, assistant treasurer, Hall
Sam Dennis, Hall
Bill Dennis, Hall
Barbara Conn, Hall
Leonard J Connors, Sr., Princeton
Leonard J Connors, Jr., Princeton
Pat Perry, Drummond
Arthur Kolbeck, Hall
Evan Kolbeck, Hall
Mike Conn, Hall
Laura Ledbetter, Maxville
Rita Conn, Maxville
Mary Rodgers, Maxville
Charles H. Dringle, Philipsburg
Casey Carson, Maxville
Janel Gowen, Maxville
Frank Wallbillig, Philipsburg
Carl L. Cassidy, Maxville
Jenny Cassidy, Maxville
Ray Lucier, Maxville
Robert Spitzer, Maxville
James E. Maehl, Maxville
Grace Maehl, Maxville
Clayton Herron, Helena
Kenneybelle Metcalf, Drummond
Kelly Spitzer, Maxville
Dale Martin, Maxville

GRANITE COUNTY ALLIANCE MEMBERSHIP (Continued)

Randy Martin, Maxville
J.C. Mercer, Maxville
Bill Wight, Hall
Albert Boomer, Hall
Bobbie Strand, Maxville
Evelyn Boomer, Hall
Keith Graybeal, Hall
Helen Konda, Maxville
Judy Hogan, Hall
Tom Hogan,Hall
Dan Hauptman, Hall
Marilyn Dagel, Philipsburg
Marvin Dagel, Philipsburg
Leland Skaw, Hall
Gayla Skaw, Hall
Herb Skinner, Hall
Bev Skinner, Hall
Elsie Skinner, Hall
Ruth Shea, Maxville
Tom Svoboda, Hall
Lynn Svoboda, Hall
John Conn, Hall
Darlene Conn, Hall
Dwight E. Hauptman, Hall
Ruth Hauptman, Hall
Mary Faye Conn, Hall
Jerry P Koon, Missoula
Janet Koon, Missoula

PREPARED STATEMENT OF MIKE CONN

My name is Mike Conn. I am a member of the Granite County Alliance for which I speak tonight.

The BPA has many faults as far as their maps are concerned. Some of them are:

No. 1: They have not shown Maxville as a urban/residential area in their land use land cover map, but that isn't suprising since they don't show Maxville in any of their EIS maps at all.

No. 2: Also in their agriculture map they show very few acres of irrigated farm land between Maxville and Drummond when in reality there are thousands of acres of irrigated land. We have the existing land use map of Granite County Montana printed by the U.S. Dept. of Agriculture and Conservation Service which this map was taken from and it shows a much clearer picture of how many irrigated acres there really are between Maxville and Drummond. Why was this change made in the BPA's agriculture map?

No. 3: Why isn't there a more southern route alternative over more public land? The two alternative routes the BPA shows goes approximately six miles of private land between Maxville and the West Valley. The BPA could have avoided much of this private land by going a little further south over or behind Henderson Mountain and Black Pine. This would also have taken advantage of the clear-cuts on Henderson and Black Pine.

No. 4: What is the matter with using steep terrain, because this land is the most unused by cattle, elk and deer. They don't like to graze on it because it has the least grass and browse. Steep terrain also is the least productive timber land because it mostly has small and stunted trees. From an economic standpoint the steeper terrain is the clear winner for the BPA's transmission line, but most importantly, the steep terrain being what it is has very few people around or close to it.

PREPARED STATEMENT OF RITA CONN

My name is Rita Conn, Iam a member of the Granite County Alliance, for which at this time I am representing with the following statements on the BPA and its public involvement.

The alliance feels that the Bpa hasn't delt fairly with the public. In fact that the BPA hasn't delt with the public at all. Only with a small amount of people and those of the Bpa's own choosing. Being the public will end up paying for this proposed powerline the public has a right and must be delt with in an honest manner. I'd like to bring several items to the attention of everyone here.

(1) Comparison of News Paper ads, May 14 1981 to ad dated April 8, 1982. Maps are vague. April however is an improvement over May 81 but both still have their flays. True the BPA did put the ads in the local paper so any one interested could attend the scoping meeting, but when the May 81 ad came out in the Philipsburg mail no one really south of Hall had ever been contacted by the BPA and in looking at May 81's map it shows not Hall or Maxville, or Philipsburg, it does show Anaconda, and Butte and these communities have ar are in no where nera the proposed route. April 82's map although improved does show Maxville and Philipsburg does not show Hall. And the scale that the Maps are could have the line going any where north of Maxville, when we are under the impression that it passes ove the top of this small community.

(2) Mailing list: befor the scoping meeting in Drummond 1 person south of Hall was on the mailing list... June 81-8 people south of Hall were on tha BPA mailing list (3 were from Philipsburg. The Dart EIS had 16 people south of Hall of the mailing list and as of March 1 1982-22are on the list.

(3) Drummond scoping meeting was attended by 4 Hall-Maxville area landowners, and 3 Philipsburg people. The low turn out of concerned Hall-Maxville people isn't due to the fact that they didn't care but had not been informed by the BPA as to

what was going on. The land owners who did attend the scoping meeting were not informed that their land was involve by the BPA but by another landowner from the Drummond valley.

(4) workshops: on page 11 of the Plan for Environmental Studies workshops were planned under phase III of the Routes Identification and Review. NO such workshops were ever held in the Garrison-Missoula study area.
(5) Also in fig. 3 of the Plan For Envirmental Studies Garrison-Misso la study are was planned to be done in ½ the time of the Hot Springs and Bell Sections of the line. This is comparing it to other studies in the Enviromental Studies.
(6) It seems that the last people who are informed of this line by the BPA are the people who become the most severly affected.. It seems as though its a hopeless and already to late to most of these people. Because its usually to late to protest.
(7) BPA still hasn't listened to naything the Granite County Alliace has said since our Feb. 3 meeting in Drummond. And only recenly has said they have even looked in to other possable routes south of Maxville and this came out recently in the Missoulan. Stating that the BPA had studied at least 10 routes around Maxville this came as a great surprise to everyone sice we were told there wasn't time to do any more studies.
(8) The Granite County Alliance stongly feels that the landowners (no matter how small amount of land they own) MUST be notified directly by mail very early in the process so the land owner can be up on whats going on and that they can protest we request by mail because at least then the landowner has a record of proof and first when the Bpa comes for a visit so it doesn't end up being ones word aginst one another.
(9) BPA, in response to inquire, has provided no evidence that it tried to contact any landowners south of Hall other than 2 residences out of 38. These 38 are residences south of Hall, not all major landowners but will be affected all the same by this proposed line. The 2 land owners contacted by the BPA are 2 widows and had very frequent visits (sometmes) onceaweek. Mr. George Eskridge said at the Feb 3 meeting that it is very hard to get around to seeing everyone. Sure it is when you only go to two places out of 38 on a weekly basis. The same 2....
in the EIS it tells of community meeting in the Maxville area with Maxville residents and the Bpa on JUly 7 1981 to discuss a transmission line routing through this area.*******
* from the EIS appendix A
When asked the names of the residents who attended this meeting the Alliance was told it was confidental. Residents means several not one or two. Noone else knew of this meeting other than the BPA itself.and a few of the BPAs own choosing.

WANTED: YOUR VIEWS ON POWER LINE IMPACTS.

Let's get together and exchange information on the Garrison-Missoula portion of the proposed Garrison-Spokane transmission line project.

We'll fill you in on the past, present and future of this project designed to help meet the power needs of western Montana as well as other Pacific Northwest areas.

Then we'll ask your help in identifying issues and concerns that should be dealt with in a revised environmental impact statement.

You'll also be asked to comment on the alternative routes (see map), one of which is to be selected for the proposed power line.

Finally, we'll answer any remaining questions.

The portion of the proposed 500-kilovolt line between the Garrison area and the Missoula area is a new addition to this project. Public meetings on the original Hot Springs-Bell project between the Missoula area and Spokane were held in late 1979 and early 1980. Follow-up sessions are contemplated later this year to bring citizens along that portion up to date on proposed routes and other facets of the project. Our need right now is to receive your comments and suggestions regarding the newly added portion. We're interested, for example, in any concerns you may have about effects on forests and other natural resources, on agriculture and other land uses, on undeveloped lands and recreation, on scenic values, on animals and on people.

We've scheduled six meetings, all beginning at 7:15 p.m. (doors open at 7 p.m.). Dates and locations are:

Monday, May 18
Drummond Community Ctr.
Drummond, Montana

Tuesday, May 19
Clinton School
Clinton, Montana

Wednesday, May 20
Potomac School
Potomac, Montana

Thursday, May 21
Lolo Community Ctr.
Lolo, Montana

Wednesday, May 27
Frenchtown School,
Elementary Multi-Purpose Rm.
Frenchtown, Montana

Thursday, May 23
Village Red Lion Motor Inn
100 Madison Street
Missoula, Montana

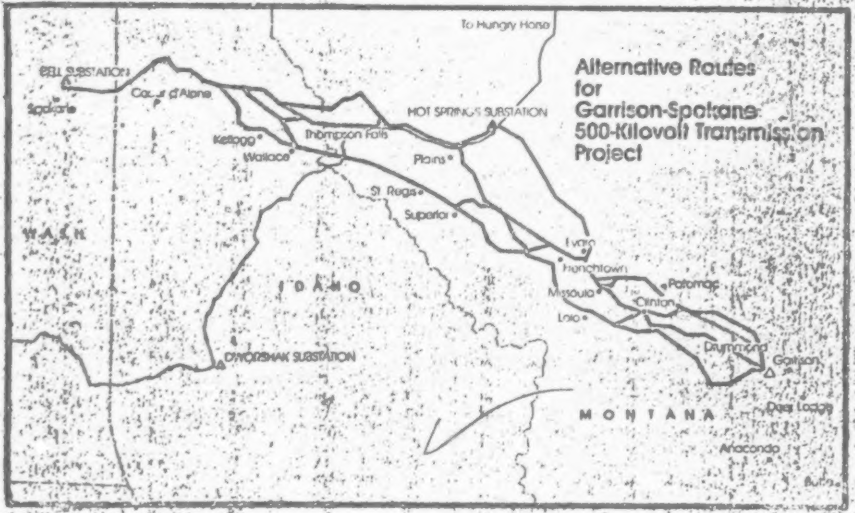
Written comments are welcome, too. Submit them at the meetings or send them by June 15, 1931, to:

George E. Eskridge
Projects Information Officer
BPA Transmission Coordination Office
1620 Regent, Post Office Box 4327
Missoula, Montana 59806

For more information, write to the above address or call (406) 329-3737.

There is a best way. Together we can find it.

Bonneville
Power
Administration


To Hungry Horse
BELL SUBSTATION
Spokane
Coeur d'Alene
Kellogg
Wallace
Thompson Falls
HOT SPRINGS SUBSTATION
Plains
St. Regis
Superior
Evaro
Frenchtown
Missoula
Lolo
Potomac
Clinton
Drummond
Garrison
Deer Lodge
Anaconda
Butte
WASH.
IDAHO
DWORSHAK SUBSTATION
MONTANA

Alternative Routes for Garrison-Spokane 500-Kilovolt Transmission Project

[illegible]

Learn more about the project at an open house in your area.

Comment on the draft environmental impact statement at a public meeting on the same date.

The environmental impact statement covers a 500-kilovolt transmission line proposed by Bonneville Power Administration between [illegible], Montana, and Spokane, Washington, as well as [illegible]-kilovolt transmission facilities proposed by the Washington [illegible] Power Company in Idaho and [illegible].

Written [illegible] meetings [illegible] Information [illegible]

For [illegible] toll-free in [illegible] Oregon [illegible]

[illegible] HOUSES

3 p.m. to 8 p.m.*
(See schedule for dates and locations)
- Project maps and displays.
- Printed materials.
- Answers to your questions.

*3:45 p.m. to 8 p.m. in Potomac, Lolo and Frenchtown.

PUBLIC [illegible]

7:[illegible] p.m. [illegible]
(See schedule [illegible])
Agenda:
- Brief presentation on [illegible]
- Statements and/or comments [illegible] public.

MEETING/OPEN HOUSE SCHEDULE

Spokane, Wash. – April 12
East Valley High School Commons Area
East 15711 Wellesley

Coeur d'Alene, Idaho – April 13
[illegible]
Convention C[illegible] Hwy 4

[illegible] – April 14
[illegible] Cafeteria

St. Regis, Mont. – April 15
St. Regis High School Cafeteria

Missoula, Mont. – April 19
Big Sky High School Multipurpose Room
3100 South Avenue West

Drummond, Mont. – April 20
Drummond Community Center

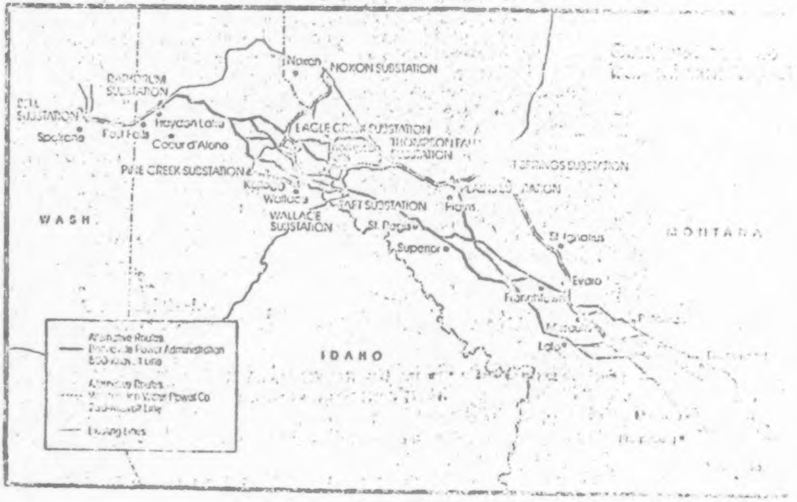
Lolo, Mont. – April 21
Lolo School Gymnasium

Philipsburg, Mont. – April 22
Granite County [illegible]

Frenchtown, Mont. – April [illegible]
[illegible]

Superior, Mont. – April 27
High School Multipurpose Room

St. Ignatius, Mont. – April 28
High School Library


Noxon
NOXON SUBSTATION
RATHDRUM SUBSTATION
BELL SUBSTATION
Spokane
Post Falls
Hayden Lake
Coeur d'Alene
EAGLE CREEK SUBSTATION
THOMPSON FALLS SUBSTATION
PINE CREEK SUBSTATION
Kellogg
Wallace
TAFT SUBSTATION
WALLACE SUBSTATION
St. Regis
Superior
Plains
PLAINS SUBSTATION
HOT SPRINGS SUBSTATION
St. Ignatius
Evaro
Frenchtown
Missoula
Lolo
WASH.
IDAHO
MONTANA
Alternative Routes
Bonneville Power Administration 500-kilovolt Line
Alternative Routes
Washington Water Power Co. 230-kilovolt Line
Existing Lines

STATEMENT TO BE PRESENTED AT BPA PUBLIC MEETING APRIL 22, 1982 AT PHILIPSBURG

My name is Adele Furby and I am chairman of the Granite County Alliance. On behalf of the membership of the Alliance I would like to make the following statement.

On February 3rd, 1982, the Granite County Alliance passed a resolution which advocated that the BPA locate their proposed centerline on the Gold Creek-to-Harvey Cabin segment of the Taft Route within a corridor about two miles south of Maxville. This corridor we call corridor "E". We believe that a route through this corridor would be preferable for the following reasons :

1) It would avoid all residences. Any route through this corridor would be more than one-half mile from any permanent homes, whereas the Taft route comes closer than one-half mile from 18 permanent residences in the Maxville area.

2) It would avoid more private land. A route through corridor E would cross less than one mile of private land, whereas the BPA's "environmentally preferred" route on segments 130, 132, and 134, inclusive, would cross over eleven miles of private land.

3) A route through corridor E would avoid seven more miles of private agricultural land than the Taft route.

When one evaluates routes through corridor "E" using the analysis maps in the draft Environmental Impact Statement, the following information can be found which further supports our contention that corridor E is a more desireable area for the line location than the Taft route. The following analysis compares approximate mileages between Corridor E and the Taft route. In this analysis, the Taft route segment studied begins where segments 131 and 130 diverge, follows segment 131 westerly, includes segment 132, and includes the eastern segment of segment 134, ending where segment 134 intersects with corridor E. The map accompanying this statement clearly delineates the segments of the Taft route used in this comparison. In this analysis, the segment called corridor E also begins where segments 130 and 131 diverge. It follows segment 131 westerly until it converges with the eastern edge of corridor E. It then follows south and west through corridor E, and ends where Corridor E meets segment 134. This is also shown on the enclosed map. Therefore, the Taft route section studied and the E corridor studied begin and end at the same locations. Although, as has been mentioned by other spokesmen for the Granite County Alliance, we feel that the maps contained in the Draft EIS are not completely accurate, the evidence presented in this analysis is all taken directly from these BPA maps.

1) The Hydrology impact would be significantly decreased by using Corridor E. Corridor E crosses about 7 miles of impact área, whereas the Taft route crosses about 10 miles of impact area.

2) Wildlife impact is greatly reduced by using corridor E. Corridor E would create a low impact on about 16 miles and a moderate impact on less than one-half mile, whereas the Taft route would have a low impact on about 21 miles and and a moderate impact on more than two miles.

3) Forestry impact would be reduced by using corridor E. Corridor E crosses about 12 miles of low impact, and about 10 miles of moderate impact land. The Taft route crosses about 8½ miles of low impact land, but about 12 miles of moderate impact land.

4) Recreation impact would also be reduced by using

Corridor E. Corridor E passes over no areas of moderate impact, whereas the Taft route crosses over two identified areas of moderate recreational impact.

5) Areas where land use constraints would be crossed are cut by more than half by using corridor E instead of the Taft route. Corridor E passes over slightly more than one mile of impactd area, whereas the Taft route passes over slightly under three miles of land use constraints areas.

6) Land acquisition cost would be greatly decreased by utilization of Corridor E, as the Taft route crosses over more than seven miles more of land classified as having moderate acquisition cost than does corridor E.

7) The amount of land with moderate erosion susceptibility would be cut in half by using corridor E. Three miles of land with moderate erosion susceptibility would be crossed in Corridor E as opposed to 6 miles crossed in the Taft route. The amount with high susceptibility is exactly the same on both routes.

8) The land crossed with geologic mass movement potential would be reduced in corridor E from 3 miles on the Taft route to 2 miles in Corridor E.

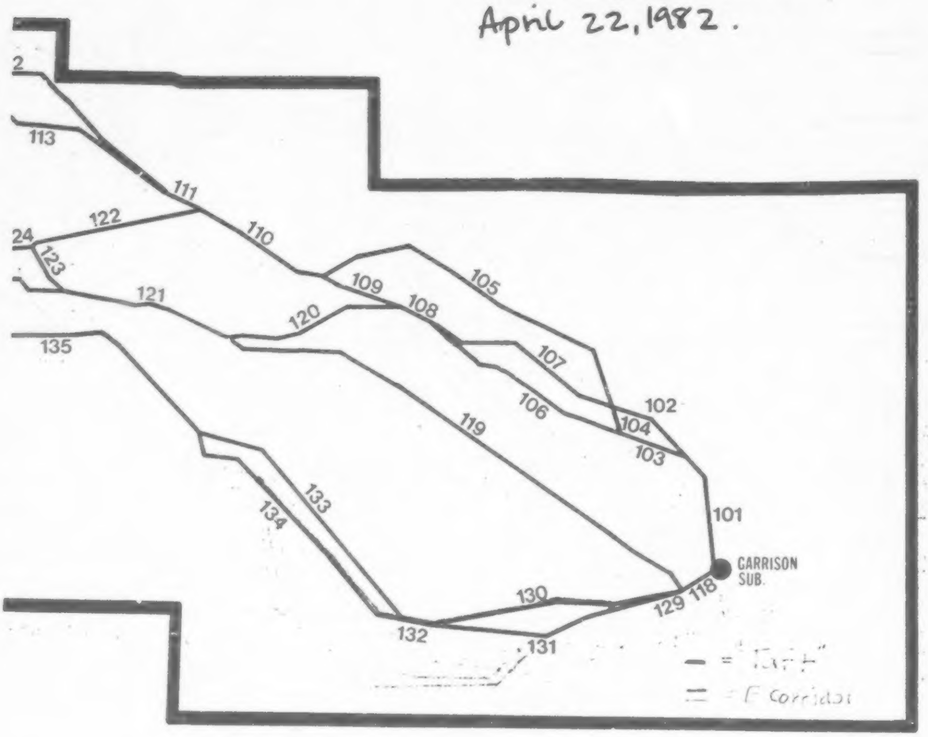
9) Less land classified as Big Game Sensitive Habitat would be crossed if Corridor E were used. Seventeen miles of big game sensitive habitat would by crossed on corridor E as opposed to over 21 miles on the Taft route.

10) The corridor E also crosses fewer areas identified as cultural resources. The Taft route crosses two prehistoric sites, while E crosses none. The Taft route crosses three historic sites, whereas E crosses two.

In summary, it can be seen that Corridor E is superior to the Taft route from the standpoint of: Hydrodogy, wildlife, land use constraints, acquisition costs, mass movement potential, big game sensitivity, forestry, erosion susceptibility, recreation, and cultural resources. These above named factors are, of course, important considerations. Add to these factors the one, main, overwhelming advantage of Corridor E--that is that it avoids the area where there is a greater concentration of people and their homes than on any other segment of the Taft Route between Garrison and Taft with the exception of Miller Creek, and the evidence makes it clear. There is no possible way that the BPA can reasonably maintain that the Taft route through Maxville is "environmentally preferable" to the Corridor E suggested by the Granite County Alliance.

Please note. The attached Route Comparisons table summarizes in chart form the route comparison data given on page two of this statement.

Map illustrates the 2 routes
compared in Granite County
Alliance statement of
April 22, 1982.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132
131
= "[illegible]"
= E Corridor

ROUTE COMPARISONS*

	Low		Moderate		High	
	"E"	Taft	"E"	Taft	"E"	Taft
Hydrology	7mi.	10 mi.				
Wildlife	<16mi.	21 mi.	<½mi.	>2 mi.		
Land Use Constraints	>1mi.	<3mi.				
Acquisition Costs			<3mi.	>10mi.		
Mass Movement Potential	2mi.	3mi.				
Big Game Sensitivity	17mi.	>21mi.				
Forestry	12mi.	8½mi.	10mi.	12 mi.		
Erosion Susceptibility			3 mi.	6 mi.		
Recreation			0	2 sites		
Prehistoric Sites			0	2 sites		
Historic Sites			2	3 sites		
	"E"	Taft	"E"	Taft	"E"	Taft

*Comparisons are between:

"Taft"--begins where segments 131 and 130 diverge, follows segment 131 westerly, includes segment 132, and 134 and ends where Corridor E intersects segment 134

"E"--Begins where segments 130 and 131 diverge, follows segment 131 westerly until it heads south through Corridor E, ends where Corridor E meets segment 134

Granite County Alliance Statement by Stewart Hauptman

My name is Stewart Hauptman and I am a member of the Granite County Alliance. I am making this statement on behalf of the Alliance membership. Mitigation

Aside from our desire to make sure that the line is located in the best possible place for all concerned, as an Alliance, we are also dedicated to insuring that the BPA utilize all possible mitigation methods to minimize impact on private landowners and other land users. Because we are aware of the fact that the line will be here for at least 50 years, and that we will be affected on a daily basis by its presence since we live and work here, we must insure that not only location, but also construction methods and maintenance methods be the least detrimental to the land users as well as the land owners. Furthermore, adequate compensation must be made to affected landowners.

Location Considerations

Permission for surveying and for right of way clearing must be obtained from affected land owners in writing, and notice of entry given on each occasion.

Tower locations must be established in cooperation with affected landowners and land users

Radio and TV reception must not be adversely affected.

Construction Considerations

Construction methods must minimize impacts on private land use. BPA must cooperate with landowners in road location. For example, on ranching and agricultural land roads should be located so as to benefit the agricultural operations whenever possible. In timber production areas they must be located so as to improve logging and timber management operations. Roads must also be located so as to minimize erosion and to be of benefit for erosion control purposes whenever possible

Helecopters should be used for tower location in areas where extensive roading would be damaging. The draft EIS mentions several areas where helecopter siting is being considered, such as Rock Creek. Our area must receive the same consideration.

Since permanent access is not required across prime farm land according to the EIS, there is no reason why it should be required across other private land.

Gates, cattleguards, and fences should be established in cooperation with landowners and land users.

Maintenance Considerations

Roads, gates, cattleguards, fences, and all other structures established in connection with construction of the line must be maintained by BPA.

All forms of weed and brush control must be done in cooperation with area landowners and land users, and prior approval must be secured from land users on each occasion when these operations are performed.

BPA must take the responsibility to take whatever measures are necessary to maintain radio and TV reception at pre-construction quality.

Compensation Considerations

Adequate compensation for easements must be established on other than a one-time, per-acre payment basis. Property devaluation, loss of agricultural productivity, loss of flexibility of mining operations, and aesthetic impacts are examples of other factors which must be considered in determining adequate compensation. The expense of establishing, and maintaining roads, gates, cattleguards, fences, and all other structures necessary to maintain current land use must be borne by BPA.

All of the above stated and related mitigations must be guaranteed in writing for all affected landowners and land users before members of the Granite County Alliance will sign any contracts.

And finally, until there is an actual and proven need for any duplication or enlargement of the present power transmisssion system, the above listed mitigations are not relevant or necessary.

MICHELE SARE
STAR ROUTE
HALL, MONTANA 59837
April 22, 1982

The Draft EIS for the Proposed Twin 500-kV Line Virtually Ignores the People Living In and Around Maxville, Montana.

I am Michele Sare. I live at Stone and am representing the Granite Co. Alliance. The topic with which I am dealing, in reply to the EIS, is the repeated error and/or deliberate omission of the consideration of the fact that there are 50 people living within one mile of the proposed "Taft Route."

The BPA contends that the proposed Twin 500-kV Line will be be constructed as a "service" to the public and, that the public, the consumer, in fact, "demands" more service; that it is "necessary." Ironically, the BPA has forgotten to consider what the public has to say about the proposed line, about the entire project. Indeed, the BPA remarkably forgot to consider that there is a significant population in Maxville. This is evident from particular, glaring omissions in the Draft EIS - Appendix D - Social et Economic Considerations. The erroneous, and / or misrepresented "so-called" data is almost too voluminous to address. There are however several major points - as they related to the consideration of citizens - taxpayers - consumers. Some of the more appalling highlights are:

1) The population in Maxville was never considered in the Draft EIS. In-fact, individual residences in Maxville were not counted (by the BPA) until March 25, 1982! There are 27 residences in Maxville, withing 1 mile of the proposed line, with a total of 50 people. There is also a 200 plus lot plotted as subdivisions in Maxville.

2) Maxville was never in the computer figures as an urban or dispersed development area; rather, the socio-economic impacts as they relate to wildlife in the Maxville area were given priority. Why are human beings excluded as a significant participant of the environment? On pg. 2-17 the BPA is so remissant as to state; "...density of landowners --does not measure the potential for any specific type of socio-economic impact...."

3) The counting of communities (not wildlife but, people) was done after the corridor and route selections were made. There was no distinction made between Missoula, Maxville or other smaller communities; all received a rating of "1". As if there is no difference in population, characteristics, etc.

4) Under the BPAs listing of socio-economic criteria for determining "impact ratings", the segment dealing with Maxville, shows there to be "low" socio-economic consequences in the Maxville area. These factors include: health risks, public annoyance, inconvenience, depreciation of property values, alienation, etc. That Maxville received a "low" rating is not difficult to understand, considering that the BPA never considered Maxville to begin with!

5) Later on in this bureaucratic monstrosity, precociously called an "EIS", the line (Taft Rt.) was shown as being within a ½ mile of Maxville (as it relates to "community incidence measure"). Then however, in the "Impact Summary - Urban/ Residential Form - and the "EIS Environmental Consequences" their previous statement, that a community existed within a ½ mile of the line, was not considered or addressed.

6) The socio-economic report on the Maxville area was not delivered to the BPA until Sept. 23, 1981. Therefore, it could not have been used as an impact factor when the decision was being made on either the corridor and route selection or on alternative route selection comparisons. This is in direct violation of the N.E.P.A. regulations.

7) Numerous other areas with less population were listed as a concern in the"Environmental Consequences". Somehow, Maxville was not noteworthy.

8) The BPA considered several factors that are route-specific. For example: "slope" of the land through which the line may possibly travel is dealt with on several accounts et given a great deal of gravity - as it affects determining a route. One astronomically important factor that the BPA has never considered as a route-specific variable is that of health.

Time et time again the BPA skirts the issue that there is significant evidence of profound ill-health effects in direct relation to a twin 500-kV line. In true patronizing bureaucratic form, the BPA tries to assure us that there are really no ill-helath effects of any concern. In-fact, in their "Possible Health Hazards of a T500-kV line" report, the continually refute contradictory studies (studies that do indeed raise serious health hazard concerns) and support only those studies done by researchers that are on the BPA payroll. History has given us all too many tragically appalling catastrophies that were a direct cause and effect relationship to a "supposedly" safe project with grim long-term ill-effects. I wonder what the warnings would be of those suffering from leukemia in Nevada - as a direct result of the neclear tests, or of those individuals suffering the results of biological warfare testing, or those with the more subtle - still unclear - effects from herbicides et pesticides. What would they say to the warn-out phrase "the health hazards/effects will only be minimal." One BPA official went so far as to state "You'll get used to it. There's a little initial anxiety but, that won't last long."

9) The socio-economic considerations were not measured through reasonable parameters - giving "fair" weight to individual socio-economic criteria. In-fact, more attention was given to where the workers would live et eat and what nice guys they would be than to any possible long-term ill health of the people that live in the vicinity of this monstrosity. Also, the BPA is willing to bend-over backwards to paint the towers green so that they're a pretty color to minimize "eyesore" but, nowhere do they mention being willing to bend-over backwards to minimize ill-health effects.

10) What is the real socio-economic consideration here? Economics definitely are at the root of this project - and certainly not the economics of the citizens. It's the old product-consumer game. Create the product - do a good job marketing the product - and the consumer will then "demand" the product. The sales job isn't so good this time. Our rates stand to double-or greater- where is that addressed in the economic impact statement? In an area that is already so economically depressed how can we afford even more expensive utilities?

11) What of the specific ill health effects that individuals are suffering in increased numbers in areas where the only significant change in their habitat has been the construction of an auspicious powerline?

-What of the relationship between singlet O2 and cancer, nitrodioxide and cancer, PAN and diminished growth factors?

-What about noise pollution?

-Where does the EIS deal with coronal discharge? - With electrochemical pollution?

-What about ozone - not important enough to discuss?

-Where did they deal with the fact that in areas where "large" powerlines have been established for several years there is an increase in leukemias, central nervous system disorders, infertility rates in wildlife et livestock, mental/emotional disorders . . . and most likely, more, yet undetected, ill-health effects?

12) There are several "lifestyle" considerations:

A. The Forest Service et the the BPA are concerned about the visual impact of the line, where the line will cross the hiway, the length of the span - et how many travelers - along the Pintlar Scenic Route will be able to see the towers. One of the reasons people live in this valley is because of the scenery. Why is more consideration due to people that are passing through our valley - seeing the line for about ten minutes - than to those who will have a distorted horizon to view for the rest of their lives?

B. Another consideration of the ill-effects on lifestyle here in the Flint Creek Valley is that of interferring with recreational activites and for some - livelihood. For example; who wants to come to Big Sky Country - the Great Outdoors - to hunt under a powerline? A large part of the appeal of this valley is its impression of being relatively virgin land. Recreational activities add a substantial contribution to the economic base of Granite County. In an already economically depressed area where one of the only treasures that we are capable of preserving (hopefully) and utilizing, as an asset, is the valley's inherent beauty and, therefore is an attraction for recreational purposes. The powerline will be an astronomical blemish - a marker of progress that so contrasts with the spirit of the Montanan existence.

C. A third facet of lifestyle in the Flint Creek Valley that would be negatively affected by a powerline is that people here live here as a matter of choice. It is a population that is proud of its heritage. We choose to not be "city-fied". There are areas where technology is "beautiful" - et where some consider mammoth structures to be "magnificant". Here, we consider an undaunted horizon as being magnificant. The land is precious - precious as being as close to as it had been when our forefathers first settled the valley. Most feel that the landscape is already too cluttered, riddled by other monuments, and technological advancement. Historical significance of the area would be made a mockery of.

D. People living in this valley do not necessarily "demand" more electricity - or devices that consume more energy - in fact many who live here, do so because of the nature of rural communities - there is a lack of services - there are fewer "modern" structures - and that is the way many citizens of Granite Co. choose and certainly enjoy living. Rather that's saying people want to "get back to basics" or to live as much of an unadulterated life as possible - isn't really the issue. The concern is there should remain areas in our country where people can live as openly and as an integral of the environment as much as possible. The individual's voice should be heard. This is our home and that is, or certainly should be, a prime consideration of where this powerline goes. Indeed, rather the powerline should go at all.

E. A final consideration as it affects lifestyle - is that of "aesthetics". It is a basic human need, and right to derive enjoyment, aesthetic pleasure, from the environment. So many other areas of our country have been robbed of that right; many need to escape their dwelling et to travel hundred of miles to enjoy what complexity et beauty there is in nature. Why have we let so much technology run rampant that we need to put controls on development - that we found the need to create wilderness areas, etc.??

Why can't we be sensible about this forward plunge of "progress" - haven't we learned? Why can't "nature's harmony" be preserved where people exist - and not just in designated areas?

In summary - The EIS deals with several so-called socio-economic, route-specific variables, but few, if truly any, deal with direct effects on human beings. They talk about the "roads" - the "slope" - the impacts of line crews - the alienation - (the BPA sure doesn't want to make any enemies?) - the inconvenience (which on all accounts the BPA considers "slight" or "minimal") - the affects on our land - but, where do they address the direct affects on people; those issues that jeopardize our sense of security and well-being? What about all those human beings that the BPA forgot to count?

Respectfully submitted,

Statement by Lee Tavenner
For BPA Hearing, April 22, 1982

My name is Lee Tavenner. I would like to present the following statement on behalf of the Granite County Alliance.

NEED, NO ACTION ALTERNATIVE

The power of condemnation, the National Environmental Policy Act, the Montana Facility Siting Act, and reason all require that the issue of NEED be addressed fully in this EIS. Not only must need be established, but according to NEPA the overall environmental impacts of meeting whatever Need is established must be weighed, evaluated, and compared to the overall environmental impacts of NO ACTION. This draft EIS fails miserably in both of these essential tasks.

The Need issue as addressed in the EIS is based on generation rather than load. By this logic, if Colstrip 3 and 4 were twice as big, this would establish a need for twice as much power, regardless of actual load. Such an approach is a self-serving, utility-oriented analysis of "need" on the part of BPA, and it is a corruption of the general "public good" concept of need.

All actual load projections are smaller now than they have been in the recent past. From the approximate 5% growth rate for Northwest Power mentioned in the Montana Certificate of Need for Colstrip, estimated growth rate has dwindled to about 1.6% in the April 5, 1982 BPA load forecast. Forecasts for 1985 loads in the Northwest have dropped about 3500 MW just since 1980, or more than twice the proposed output of Colstrip 3 and 4. The deficits and shortages predicted in the very early Colstrip documents have never materialized. In 1981 Montana Power sold $ 70 million worth of surplus power. According to the 1981 Montana Power Report to Shareholders, Montana Power in 1981 had 338 MW more capability than peak load (28%), and 643 MW more capacity than average load(72%). This is without Colstrip 3 & 4. With BPA's estimated growth rate of 1.6%, and with the planned hydro expansion at Ryan, Hauser, Thompson Falls, and Kerr Dams, Montana Power capability in 1990 of 1667 MW will exceed 1380 MW peak load by 287 MW(20%), and will exceed 1026 MW average load by 641 MW(62%). This is without power from either Colstrip 3 or 4. (see attached stockholder report summary).

None of these recent load projections are discussed or used in the EIS in relationship to need for the powerline from Garrison to Spokane. Nor have the projected dates for this need been changed or discussed. The surplus sales by Montam Power is not discussed in the EIS. Nor is the proposed delay of construction of Resource 89, now Salem, discussed in the EIS. The EIS has not accounted for the closure of the Anaconda smelter, and the reduced need for power from the Bunker Hill closure has been very carefully sidestepped.

A load forecast is included in the EIS, but it is not discussed in relation to need for the power or the powerline. Resources available is not covered at all, so existence of need cannot be reviewed or verified except by reference to material not contained or referred to in the EIS. Montana Power hydro expansion plans are not considered or discussed.

Implications of the Woops nuclear plant closures and slowdowns is not considered. Discussion of the one-utility concept and its relationship to choice of plants to be stopped or slowed down is not discussed. The relationship between already certified need for Woops along with Woops closures partly for lack of need is never discussed in the EIS.

The 73% BPA price increase and its effect on conservation is not considered. The doubling of Montana Power rates if and when Colstrip 3 and 4 are energized and the consequent conservation effect is completely ignored.

In summary, the issue of need and the numerous current conditions that have had a profound effect on need or lack of need for this powerline have been totally ignored in this EIS.

Nor has the NO ACTION alternative begin given its due. Clearly, unless Need is established, NO ACTION is the only environmentally and economically preferred alternative.

Even if need of some level can be established, it remains a major responsibility of the EIS to measure and compare the environmental impacts and consequences of not meeting the need with the environmental impacts and consequences of building the line. If the impact of the line is greater than the impact of not meeting the need, then not meeting the need or NO ACTION is still the environmentally preferred alternative, even though some level of need might have been established.

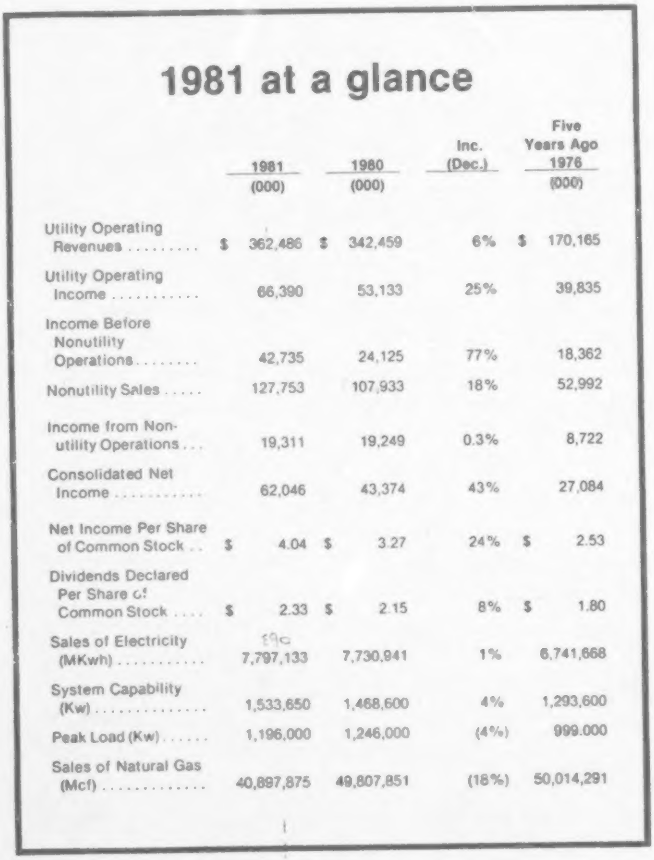
In turn, the NO ACTION consequences and impacts must be identified and measured in comparison with the action alternatives in such a way that the NO ACTION alternative can be considered by the decisionmakers as a real possibility, even though it may not be shown to be the environmentally preferred alternative.

Clearly BPA's handling of the NO ACTION alternative has not been a good faith consideration or study of the alternative.

The aluminum industry is a potential large (30%) reserve that should be a major factor in considering need, and in considering risk. Because forecasts have traditionally been based on 35-year low water years, the potential of the aluminum reserve for once-in-thirty-five year contingencies should be a major factor. No discussion of the impact of aluminum curtailment in low water years as compared to the impact of the incredible debt load of overbuilding thermal plants is given in the EIS.

BPA occassionaly refers to what they call congressional "mandate" as settling the need issue. The congressional permission itself refers to "such amounts as may be necessary...." Without establishing need, BPA has no congressional authorization.

BPA has attempted to segment this line into separate units with separate EIS's. If they segment the EIS consideration, then they must segment the need issue and establish it completely independently. And by NEPA they must independently consider NO ACTION and the possibility of a real go/no-go decision currently with the EIS study timetable. (see attached CEQ #1502.5)



1981 at a glance

		1981 (000)		1980 (000)	Inc. (Dec.)		Five Years Ago 1976 (000)
Utility Operating Revenues	$	362,486	$	342,459	6%	$	170,165
Utility Operating Income		66,390		53,133	25%		39,835
Income Before Nonutility Operations		42,735		24,125	77%		18,362
Nonutility Sales		127,753		107,933	18%		52,992
Income from Non-utility Operations ...		19,311		19,249	0.3%		8,722
Consolidated Net Income		62,046		43,374	43%		27,084
Net Income Per Share of Common Stock ..	$	4.04	$	3.27	24%	$	2.53
Dividends Declared Per Share of Common Stock	$	2.33	$	2.15	8%	$	1.80
Sales of Electricity (MKwh)		7,797,133		7,730,941	1%		6,741,668
System Capability (Kw)		1,533,650		1,468,600	4%		1,293,600
Peak Load (Kw)		1,196,000		1,246,000	(4%)		999.000
Sales of Natural Gas (Mcf)		40,897,875		49,807,851	(18%)		50,014,291

METHODOLOGY

The original purpose of the NEPA legislation that requires impact statements was to protect the environment. The Bonneville Power Administration has designed and manipulated the methodology in this Draft Environmental Statement to justify and expand its own technical considerations while de-emphasizing and downplaying human and socioeconomic concerns. The extensive mistakes and misrepresentations reinforce the technical aspects of powerline construction at the expense of human population.

The study has been structured to hide this bias, and the basis for conclusions has been judgemental rather than analytical. These judgemental comparisons have been made sufficiently complicated and unmeasurable as to render the document nearly impossible to understand, evaluate, or review. And what material is relevant to review is unavailable in the EIS and is not effectively and fairly summarized anywhere in the EIS. Selection of source data used or excluded from comparisons was uneven, inconsistent, unjustified, and unexplained.

Technical Bias

Route segment identification within corridors was determined primarily under direction of the siting engineer whose expertise is civil engineering rather than environmental studies. Furthermore, the decision of whether or not to identify alternate route segments for comparison purposes was under the direction of the same siting engineer. Although the engineer was supposed to consult with other team members in this segment identification, no explanation, justification, record, tables, notes, or other documentation explains this segment identification for any specific segments, segment alternatives, or lack of segment alternatives. This is verified by the March 25 information letter from George Eskridge to me, a copy of which is included here with that reference marked(p. 3, #9). This clearly leaves the segment identification process at the direct mercy of extreme technical bias, without any possible review.

The development of further data on any particular segment is dependent on its being part of a 2-segment comparison. If no alternative segment is identified for comparison, the data collection process stops here on this segment, and most of the relevant impact data for the segment is not gathered. Some further data is gathered on the impact summary forms, but only impacts deemed "noteworthy" at the wide-open discretion of the impact summary form analyst is even mentioned here. Clearly errors of omission are not available for revue here.

Route comparison scores summaries are shown in Appendix A, but without any site specific explanation or justification of these scores. The scores are based on analysts judgements that are noted in route option ranking forms(BPA letter of 3/25/82 on p. 3 # 10). Included is an analysis of the sources of impact measures listed on the route option ranking forms. As is clear, access roads are repeated 4 times in 4 separate scoring categories, erosion potential in 3 separate scoring categories, elevation in 2, slope in 2, forestry in 2, and stream crossings in 2. However, the measure of human population is considered in only 1 scoring category. Therefore, the total impact score from high access road requirements can be as much as 4, while the score from human population can only be 1. This is clearly a technical bias at the expense of human consideration.

In the Maxville case, locating segment 132 where it is is not explained, justified, or in any way discussed. That the existence of Maxville was not addressed at all in locating segment 132 is inexcusable. That no alternative segment to segment 132 was ever identified for basic comparison and data development purposes is a clear indication of the highly manipulated methodology used to favor technical bias over human consideration.

Bias Against People

Bonneville Power Administration's methodology for counting people reflects their bias against taking people into account. But their attempt to cover up this bias is also clear in their process.

The principal measure used to count people was through Land Use. Data Items 17.1 and 17.2 show Urban/Residential and Dispersed Development. Although these two data items were all that was listed in the 3/10/82 Data Item Definitions and Sources, data items 40.1 and 40.2 were added to refine 17.1 and 17.2. 40.1 measures communities within 1 mile of the line, and 40.2 measures residences within ½ mile of the line. A community can apparently be any number of residences, or any number of residences can be counted individually. What constitutes a community is determined by BPA analysts on a case by case basis. This seems clearly to be a case where the counting methodology used is designed to be manipulated in such a way that human population impact can appear to be whatever the BPA analysts choose, regardless of actual population. To imply reduced impact, count 100 houses as one community. To imply increased impact, count 2 residences as one community. To imply increased impact, count 1 community as 100 houses. Etc.

When we requested specific information on the number of residences in Maxville, BPA did not know, but they tried to imply that they counted residences when they identified a community.(see BPA letter3/25/82, p.7 # 21.) Subsequent response from BPA established, however, that the residences had not been counted until after we requested the information,(see BPA letter of 4/9/82, p. 1, # d). on March 25, 1982.

That such vital human population data is simply not known is a huge error of omission, and a serious flaw in the methodology. But the way in which this community-residence count can be manipulated at BPA's discretion raises very serious doubts about the intentions of the methodology developed, and at the very least seriously jeapordises BPA's credibility.

The extensive mistakes in the EIS regarding identification of population in Maxville illustrate the tendency of BPA to make mistakes in favor of technical bias and against human consideration. The base map used for the EIS maps shows a circle beside Maxville, and the circle is all that shows in the EIS maps. The legend for the base map identifies such circles as "populated places" (see attached legend). The urban source maps identifies Maxville as urban, but the EIS map shows Maxville only as dispersed development. However, in spite of clear evidence to the contrary in both source maps, the computer readouts of Urban and Dispersed Development show Maxville segment 132 as having 0.0 miles of urban and 0.0 miles of dispersed development land use. In each successive mistake, the tendency is to ignore people. (see computer readout.)

The Socioeconomic Report, Appendix D, is another attempt to try to show that BPA is considering people. But the report was not transmitted from Mountain West to BPA until after the Sept. route comparison workshops were over. And the interviews on which the study was based were only being conducted when the Hot Springs-Bell route comparisons were made in July. The Socioeconomic Report was justification done after the alternative comparisons had been made, a clear violation of NEPA. (CEQ rules # 1502.5) Estimated landowner density for segment 132 was rated as low(BPA letter 3/25/82, p.6, # 20) so the socioeconomic study, late as it was, was wrong. Once again, this landowner density mistake and the after-the-fact economic report indicate mistakes slanted against human and social considerations.

Flatter land is generally more valuable and more suitable for human use. Steep ground is less likely to be used by people for future development. The BPA methodology does not consider this critical socioeconomic factor; rather the methodology considers only the opposite consideration for technical construction considerations. The powerline should be placed on less valuable steeper ground not only for human use of flatter ground later, but because long-term land use costs will far outweigh short-term construction costs. Any socioeconomic consideration that does not take account of long-term land use cost impacts is seriously lacking.

Draft Statement Judgemental, Unreviewable

The corridor impact maps are developed by the analysts applying according to their judgement a matrix scheme to the resource maps. The matrix scheme in turn is an application of the analysts judgement of level of impact of various combined resources. There are no measurements of either the matrixes or their application to the maps; the entire impact rating is an unstructured judgement call of the analysts, and as such is virtually untraceable for review.

The route segment identification and segment alternative identification is totally undocumented and therefore entirely unavailable for review. Any bias, hidden motives, or unjustified weightings at this point are completely hidden.

The data base maps are of such small scale and without sections lines such that identification of known areas is extremely difficult. Although segment-by-segment computer analysis of the resource data does exist, it is not available in either the EIS or the Appendixes. Summarized route totals of these figures make analysis of any single area almost impossible. Furthermore, these segment-by-segment computer analysis data numbers of resources are not used directly for any route comparisons. The resources numbers are reviewed and interpreted by judgement calls of the analysts in the route option ranking forms in such a way that review and comment on the route comparisons is extremely difficult. Attached are attempts at summaries of route option ranking forms for comparisons of segments 130 and 131, and 133 and 134. As can be seen in these summaries, the identification of significant impacts and their corresponding scoring weights is arbitrary, random, and very unevenly weighted. And this level of review is possible only after very difficult and time-consuming study of material mot readily available in the EIS or appendixes. Clearly the methodology is designed to discourage review and comment. It is also designed to make substantive comment on the EIS material almost impossible.

Public Involvement

Development of the Taft Route in the Flint Creek Valley has been a long process of blatant manipulation of the public involvement process. In spite of often repeated goals to inform landowners within ½ mile of the line, no attempt to notify affected landowners and residents on the southern route has ever been made by BPA. All BPA notification has been incidental to the process of locating a centerline and conducting corridor surveys.

The Plan for Environmental Studies as revised in April

1981 called for public workshops to be held in July of 1981 concerning route locations and route evaluations.(see attached copy of p. 11 of Plan) These workshops were never held in the Garrison-Missoula study area.

No scoping meetings were ever planned or held in the area of the southern route of the Flint Creek Valley.

When southern route landowners and residents finally became aware of the line and its proposed location, the protest was vigorous. The BPA has gone to great pains to plan and to explain their method for avoiding the Maxville issue and disregarding public comment on the southern route in the Flint Creek Valley. The "dear reviewer" letter enclosed with the EIS said our comments and the Feb 4 meeting comments would be "treated as though they were comments received on the draft EIS" even though they were made six weeks prior to publication of the EIS. In a March 25 meeting in Hall, Dan Bisenius called treatment of our comments "a grey area", and Tim Murray tried to suggest that our comments and the meeting were somehow "outside the EIS process". Now Wes Kvarsten in ~~an April~~ a very recent letter to Representative Williams insists that the Feb 4 meeting and our comments were part of the scoping process and will not be addressed in the final EIS unless resubmitted. But the scoping process is meant to define the "scope" of the study and the Feb 4 meeting and comments was not even acknowledged in the Draft EIS. And in a March 16 letter to Granite County Alliance, George Eskridge tries to justify one of these many methodological manipulations in terms of in our March 30 letter, he simply drops the NEPA defense in his April 9 letter. Clearly these many varying attempts at formulating methodology leave us confused about BPA's ability or intention to receive public comment. Our fear is that this obvious process manipulation and continual reinterpretation is intentional and is meant to sidestep and avoid any real consideration of our concerns. To date, BPA has given no indication and no committment to even studying alternatives in the Maxville area. Once again, the methodological manipulations of the EIS process as worked out by BPA are biased in favor of technical, self-serving, in-house interests at the expense of public and human consideration.

Department of Energy
Bonneville Power Administration
Transmission Coordination
P.O. Box 4327
Missoula, Montana 59806

In reply refer to: ETJ-21 March 25, 1982

F. Lee Tavenner, Assistant Chairman
Granite County Alliance
Star Route
Hall, Montana 59837

Dear Mr. Tavenner:

Thank you for your letter of March 22, 1982, requesting additional items you feel are needed to assist in your review of the recently issued Garrison-Spokane 500-kV Transmission Project Draft Environmental Impact Statement (EIS).

Following is a brief discussion of each item requested.

1. All of this information is in the Draft EIS and appendices. The most comprehensive list is in the reference section of the Draft EIS--Section VIII, Pages 1-18. Also appropriate footnotes have been used throughout the studies to provide proper reference. Attached is a copy of "Data Item Definitions and Sources" which explains in detail sources for data, including that presented in Appendix C--Map Volume.

2. A number of air photo products have been used in preparing the Draft EIS and are available for your review at our Missoula office. Copies of the air photos can also be purchased. (Color air photos, approximately 1 inch = 2,000 feet scale, cost $3.50 per photo to reproduce 49 photos which cover the segments you mentioned.) Additionally, map and air photo information will be available for review at open house sessions preceding each public comment meeting.

3. We are providing: Measuring the Visibility of High Voltage Transmission Lines, Jones and Jones, 1978; and Visual Impact of High Voltage Transmission Facilities in Northern Idaho and Northwestern Montana (with maps at 1:125,000 scale), Jones and Jones, 1976.

4. The maps referred to are large scale black and white air photos used by the Soil Conservation Service to define soil mapping units. These mapping units are mapped directly onto the photos based on field work done by SCS soil scientists. Certain soil units have been determined to be farmland that is prime, unique or of statewide importance, as listed on separate files at the SCS offices. For Granite County, BPA personnel visited the SCS District Office at Philipsburg and, using the actual field photo maps, mapped prime and statewide important soil units onto the study area base map. We did not acquire copies of this information. Any questions regarding use or availability of the SCS photo maps or other interpretive information can be answered by Troy Buchanan, Acting District Conservation Officer, in Philipsburg at 859-3291.

5. The Montana Statewide Cooperative Land Use maps are moderate scale (1:100,000) land use/land cover maps, by county, published by and available from the Montana Department of Community Affairs in Helena for a nominal fee ($1 for the first map and $.25 for additional maps).

6. Provided to you at no cost.

7. We are providing you computer printouts which indicate the amounts of each mapped resource data item encountered, by segment, in both miles and acres for the five segments you listed.

No separate figures were compiled on "impact potential." The information presented in Table 4.3 (Potential Impacts) and Table 2.2 (Data Summary) are merely different aggregations of the mapped resource data measurements on the printouts discussed above. These printouts display the resource information by segment; Table 4.3 aggregates the information by groups of segments between intermediate substations for all feasible combinations; and Table 2.2 summarizes the same information in terms of the top-ranked route(s) for each plan-of-service.

The following table should provide the requested segment breakdown of technical data from Table 2.1:

Segment	# Circuits	Length (Miles)	Right-of-Way (All new non-parallel)	Access Requirements HML	Substation Requirements	Cost (Transmission)
130	Double Circuit	14.5	14.5	See Printout Provided With Item #18	No substation associated directly with these segments. Garrison Substation to the east.	$12,324,241
131	Double Circuit	14.8	14.8			$12,576,128
132	Double Circuit	1.5	1.5			$ 1,132,075
133	Double Circuit	16.4	16.4			$13,769,811
134	Double Circuit	16.8	16.8			$14,105,660

8. The following sources of comments and analysis of the comments are available. Verbatim transcripts were taken of all scoping meetings held in Spring 1981. This information is available for your review in our Missoula office or you may purchase copies of each transcript from Cavanaugh, Martin & Associates, 199 West Pine Street, Missoula, Montana ($.50 per page).

The other sources we have provided to you at no charge (attached). These are summaries that our staff prepared based on study and review of the transcripts and comment letters. They are:

1. A basic outline of the comment analysis method used;
2. A statistical outline of comments derived from the meeting transcripts and comment letters showing the frequency of comment by area;
3. Summaries of each comment from the meeting transcripts coded by town and page;
4. Summaries of comments from the comment letters coded by author;
5. Copy of the August 1981 mailer containing the summaries of all issues derived from the comments.

9. "Review comments" refers to those comments gathered at the scoping meetings in March 1982 which pertain to the corridors presented for public review at that time. Comments about specific corridor locations that addressed specific problems encountered within the corridor were considered in locating alternative routes. The information provided under Item #8 above would contain any specific comments considered.

The process used to locate the referenced segments involved synthesizing a wide variety of information. It included intensive study of all data and impact maps (Appendix C); field review and study; evaluation and interpretation of air photos (Item #2); and discussion and review with agencies and the public (EIS review process). There is no specific "product" that documents this synthesizing process.

10. We are providing copies of route option ranking forms used to compare segments 130/131 and 133/134. The nature of the comparisons is detailed further in Appendix A, Attachment 3. These particular route comparisons are summarized in Figure 17 and Figure 18 as Local Routing Alternatives 10 and 11 respectively in this attachment. The tables in these figures contain the final ranking for each of 12 resource topics considered in the comparison. The forms we are providing document the factors considered in making the rankings. Each resource analyst filled out a form for each Local Routing Alternative and summarized his rationale for the ranking.

11. Provided. (Also see Item #1)

12. There is no subcontractor associated with this activity along these segments. BPA has contacted people along each segment over the past 8-10 months. The specific contacts and nature of their discussions are not available at this time. BPA must obtain written approval of each party concerned prior to release of this information. This must be done to fully protect the rights of all parties involved.

13. The May 12, 1981, flyer is provided.

14. The May 12 announcement was sent to all those on the mailing list that was current on that date. This information is available and may be obtained for the cost of reproducing the list.

15. The list of newspapers and dates of publication of the Drummond meeting notices is provided.

16. See Item #12.

17. The bar and pie charts used to illustrate how the three plans compare for the evaluation criteria were based primarily on the resource data item information including that provided under Item #7. These illustrations are merely graphic representations of route data shown in Table 2.2.

Representative data items were chosen for each criterion and graphed. These are listed either in the boxes to the left of each graph or in the title and further explained in the text.

Criterion	Representative Data Items	Source
1. Residential, Inhabited	Developments, communities within ½-1 mile; residences within ½ mile	Provided as Item #21.
2. Agricultural Land	18.1 Irrigated Agriculture 18.2 Non-irrigated Agriculture 17.5 Range Land	On printouts (Item #7) as data item number as shown opposite. Also see Data Item Definitions (Item #11).
3. Intensively Managed Forest Land	Intensively Managed Forest Land	Secondary analysis product by forestry analyst. Map on file in Portland. Segment data as follows:

Segment	Miles Intensively Managed Forest
130	5.2

Criterion	Representative Data Items	Source

Segment	Miles Intensively Managed Forest
131	4.4
132	0
133	4.4
134	7.6

	Criterion	Representative Data Items	Source
4.	Lives/Lifestyles	25.1 + 25.2 Public Land 25.3 Indian Reservation 25.4 Private Land	On printouts (Item #7) as data item number as shown opposite. Also see Item #11.
5.	Scenic/Esthetic	29.1 + 29.2 Visual Quality 30.3 Visual Compatibility 31.1 Viewer Exposure 32.1 Visual Sensitivity	On printouts (Item #7) as data item number as shown opposite. Lower graph was a composite wherein maps (See Appendix C) of 29.1/29.2 and 30.3 were combined to yield "Landscape Alteration"; and 31.1 and 32.1 were combined to produce "Viewer Characteristics"
6.	Cultural Resources	High Site Potential	Secondary analysis product by cultural resource analysts. Map on file in Portland. Segments 132 and 134 each cross ½ mile of land where potential for occurrence of cultural site is high.
7.	Natural Resources	8.2 Municipal (Watersheds) 10.1 Big Game Sensitive Habitat 12.1 Bald Eagle Wintering Areas 17.4 Forest Land Problem Soils High Access Requirements	On printouts (Item #7) as data item number as shown opposite. Secondary analysis product by geology/soils analyst. Map on file in Portland. Segment 130 crosses .6 mile problem soils. As provided in table (Item #7) and for Item 18.

	Criterion	Representative Data Items	Source
8.	Environmentally Sensitive Areas	Environmentally sensitive areas shown on EIS Fig. 2.5 as crossed by routes.	See EIS Fig. 2.5. Text in Appendix A explains how these areas were determined.
9.	Uses Existing Corridor	Miles of route parallel to existing corridor	Technical considerations under "Right-of-Way" shown on table 2.2

		in EIS and as provided in table (Item #7).
10. Future Facilities	Corridor Constraint areas shown on EIS Fig. 2.5 as crossed by routes.	See EIS Fig. 2.5. Text in Appendix A explains how the areas were determined.

18. This data is provided as part of the table under Item #7. Technical considerations and levels of access requirements are defined in footnote 7 of EIS Table 2.1. To elaborate on these categories, the following amounts of off-right-of-way access were generally correlated to these categories:

    Low - 1 or fewer miles
    Moderate - 1 to 4 miles
    High - More than 4 miles

    The category "low" is by no means confined to situations where existing lines are paralleled, but often access requirements are low in such cases. Other situations could include areas where numerous forest clearing access roads have been built.

19. A copy of the CEQ Regulations is provided.

20. Estimated landowner density is as follows:

Segment	High	Moderate	Low
130	-	-	14.5
131	-	-	14.8
~~132~~	-	-	1.5
133	-	-	16.4
134	-	-	16.8

21. The estimate of number of individual residences within ½ mile of all segments, as well as the number of communities within 1½ miles, was made by review of the 1 to 2,000" color aerial photos flown in spring/summer 1981. Individual buildings, small groups of buildings and obvious communities were counted to either side of the routes within the above distances without regard to possible topographic or vegetative screening. The results were not field checked. For segment 132, 14 residences were counted, and treated as a single community.

I hope this information and data provided will assist you in your review. Please contact me if you wish to obtain those items for which there is a charge.

Thank you for your interest in this project.

Sincerely,

George E. Eskridge
Projects Information Officer

Enclosures

Department of Energy
Bonneville Power Administration
Transmission Coordination
P.O. Box 4327
Missoula, Montana 59806

In reply refer to: EVHE

April 9, 1982

F. Lee Tavenner, Assistant Chairman
Granite County Alliance
Star Route
Hall, Montana 59837

Dear Mr. Tavenner:

Thank you for letter of March 29, 1982, requesting additional information to assist your review of the Garrison-Spokane 500-kV Transmission Project Draft Environmental Impact Statement.

Following is a brief description of each item provided:

a. Provided as requested
b. Provided as requested
c. Provided as requested
d. As Jay Marcotte indicated to you on March 26, data items 40.1 and 40.2 were identified to refine items 17.1 and 17.2. It was decided to map this information from the color 1" = 2000' air photos (flown during summer 1981) to provide additional input to the urban/residential analysis of the routes. This information was collected and mapped in August 1981, prior to the September 14-16 route comparison workshop. As to the number of residences along segment 132, I am unable to say whether an actual figure had ever been arrived at prior to this March.

   As Jay indicated to you March 26, the residences in the Maxville area were mapped as a community because they occur more as clusters than as individual residences. After being identified as clusters or communities, communities were not further differentiated on the basis of size or number of houses.

   The specific figure of 14 residences was arrived at on March 25, 1982, in response to item number 21 of your March 22 letter. The study team landscape architect, using the 1981 color airphotos, counted all dwellings in a 1-square mile area centered on the Maxville crossing. As indicated in our March 25 response, he counted 14 residences.

e. Provided as requested.

f/g The entries in the Data Item Definitions and Sources were generalized references which did not necessarily list, in detail, all the specific sources used to produce a particular map. Such generalized listings typically occurred for data items which were based in large part on USFS and BLM sources. In such cases, rather than listing each specific resource map used, all references were generalized as "Unpublished resource maps". During your March 26 meeting with Jay Marcotte, he offered to try and give you a more specific list of these resource maps for data items that you deemed important for your review. For the data items you mentioned in your March 29 letter, no "more specific" sources were used other than what is shown on the list. However, reference to our 1':2000" color air photos was inadvertently omitted from the Data Item

Sources. These were the major sources for the land use data base. As Jay indicated to you on March 26, the major sources for Agricultural Productivity (note: this refers to Prime, Unique, or Statewide important lands and nothing else) were the maps or photo-maps available in each SCS District Office. The actual use of land for agricultural purposes was part of the Land Use/Land Cover data base and was compiled using aerial photography along with the sources listed under data item 18.0 on page 10.

h. We are providing two copies of the project mailing list. The first is the earliest dated list we have record of. It is dated June 1981 and basically contains the people to whom notices of the May 1981 Scoping Meeting were sent. The second list is our current mailing list, dated March 1982.

i. Provided as requested.

j. Access roads requirements were estimated by BPA's right-of-way engineering group based on helicopter reconnaissance, air photo interpretation, and on the ground field checking. Access requirements were divided into three groups (High, Moderate and Low) as defined in our March 26 response. These were averaged for each segment and entered into the data file. Each team analyst used the data printouts, including the one on access, in performing his route option rankings. In the case of the Socioeconomic study, the analyst multiplied an average mile figure for each access class by the number of miles in that category to arrive at an estimate of the total number of miles of access required. For instance, segment 141 is 7.7 miles long and would have high access requirements. Therefore, 7.7 X 4 = 30.8 miles of access roads. The "4" above is the average miles of off-right-of-way access required per each line mile under the "High" Category.

k. Per telecon April 2, 1982, you have already obtained a copy of this.

l. Copies of these maps have been sent to our Missoula office where you may review them.

Additional concern: The individual residents BPA met with on July 7, 1981 whose names were requested in your March 22 letter have given permission for their names to be provided to the Granite County Alliance. They are:

Evelena Anderson
Stuart Hauptman
Mrs. Albert Boomer
Laura Ledbetter
Gordon Foster
Elmer Lachenmayer
Ray Lucier

This information supplements that which we provided earlier. I trust that it will enhance your review.

Again, thank you for your interest in this project

Sincerely,

Jay N. Marcotte for George Eskridge

George Eskridge
Projects information Officer

2. Conduct workshops 1/ to inform public about route locations and solicit comments on issues and route evaluation criteria Relate issues to routes.	Project Coordinators Spokane Area Office Missoula Office USFS, BLM	Mar 1980 (July 1981)
3. Review and assess results of workshops. 2/	Team Leader Missoula Office	Mar-Apr 1980 (Aug 1981)
4. Issue Newsletter No. 4.	Missoula Office	(June 1981)
5. Develop a mailing list of individuals and groups that might want to be informed about and involved with the project. Expand this list with other agency advice.	Team Leader Missoula Office USFS, BLM	Dec 1979 (Apr 1981)
6. Contact with affected landowners, organizations, and local agenices.	Missoula Office	As Requested

Expected Results

The results of the workshops will help finalize issues, plans of service, route locations and evaluation criteria that will be used in the next phase.

PHASE IV - Impact Assessment

Objective

Continue to keep the public informed of project status.

Methods

Action	Responsibility	Due Date
1. Distribute a mailer informing the public of the earlier workshop results.	Project Coordinator Missoula Office	Sep 1980 (Aug 1981)

1/ Workshop will be held at convenient locations throughout the study area to provide opportunities for public participation.

2/ Several workshop participants requested that BPA notify all potentially affected property owners. See activities added to Phases V and VI.

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ROUTE                                ROUTE
NAME   SEGMENTS                      LENGTH   DATA ITEM
                                              16.1  17.1  17.2  17.3  17.4  17.5  17.6  17

130    130
                                  -  14.5 -   0.0   0.0   0.0   0.0   12.0  2.5   0.0   0

131    131
                                  -  14.8 -   0.0   0.0   0.0   0.0   13.7  1.1   0.0   0

132    132
                                  -   1.5 -   0.0   0.0   0.0   .1    .3    .6    0.0   0

133    133
                                  -  16.4 -   0.0   0.0   0.0   .3    6.4   8.9   .8    0

134    134
                                  -  15.8 -   0.0   0.0   0.0   .2    13.0  3.6   0.0   0
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URBAN RES

DISPERSED DEV

Senator BAUCUS. If the rest of the witnesses will just indulge me here about 10 or 15 seconds, we've got to straighten out the witness list. OK, we have very, very strict time requirements, planes to catch, including myself, so let's go this way. We'll go first with Mark Reis. Why don't you come up first, Mark, and give your testimony, and I'd encourage you to be very short and to the point. Then Mr. Halvorson, because I understand he has a plane to catch. Then we'll go with the panel after that. OK, Mark, you may proceed.

STATEMENT OF MARK M. REIS, DIRECTOR, NORTHWEST CONSERVATION ACT COALITION

Mr. REIS. For the record, my name is Mark Reis; I serve as the director of the Northwest Conservation Act Coalition. I thank you for the opportunity to testify today.

The Northwest Conservation Act Coalition is composed of some 37 citizen, labor, environmental and ratepayer organizations representing over 100,000 people in the Pacific Northwest. Five of those organizations are from the State of Montana. The coalition was formed and its member organizations are working to insure the best possible implementation of the Northwest Conservation and Power Act. That is, our goal is that the conservation, renewable resource, fish protection and public participation promises of the act are implemented as intended. Unfortunately, the Bonneville Power Administration is making that formidable task a great deal more difficult.

In my testimony today, I will not address one very important issue, the siting and consideration of transmission lines as many other witnesses have much more capably addressed it than I can. I will, however, address four issues in my written testimony: Conservation and resource acquisition, low-income weatherization, sales of power to the Southwest, and BPA's inconsistent adherence to the National Environmental Policy Act. Each of these issues points up BPA's selective implementation of the act. When it is in BPA's bureaucratic self-interest to follow the intent of the law, it does so. When the letter or intent of the law would require it to change in a way it does not wish to, BPA arrogantly turns up its nose, averts its eye and goes on its existing merry way.

The Conservation and Power Act directed a major change in the direction, priorities and goals of the Bonneville Power Administration. To date, BPA has demonstrated little awareness of that mandated change.

CONSERVATION PROGRAMS

Speaking to conservation-renewable resource acquisitions of the act, the act states in no uncertain terms in section 6(a) that the administrator is to acquire all conservation that is cost-effective and all renewable resources that are cost-effective and available to him, even prior to the adoption of the Regional Conservation and Power Plan by the Northwest Power Planning Council. Despite this unmistakable mandate, it took BPA a full year to get in place its short-term utility conservation agreements, and, still 2 years later, it has not developed and implemented any long-term conservation agreements. The bottomline of BPA's conservation efforts can be determined by examining its expenditures. I have been informed that of the approximately $150 million budgeted for conservation in fiscal year 1982, BPA will spend approximately $30 million; 20 percent of the already reduced budget. Of all BPA's 120 odd utility customers, only 12 will have obligated any conservation money in fiscal year 1982 and three utilities out of 125, or thereabouts, will account for fully 90 percent of the BPA conservation expenditures.

As these numbers indicate, BPA is uninterested in developing conservation resources. The common response to criticism to BPA's conservation programs is, and as I understand it, Peter Johnson's explanation this morning was, "But the region now has a power surplus; we don't need to push conservation." I wish that plaint could be believed, but unfortunately, it cannot. When one examines the recently published "Proposed Near Term Resource Policy," one finds that BPA has underestimated the value of conservation and its future need by as much as 60 percent. By limiting power acquisition to those costing no more than 35 mills per kilowatt hour, Bonneville is ignoring the availability of other cost-effective resources that could productively provide the region needed energy over the next 20 to 30 years. One also finds that the forecasted surplus that Bonneville has recently proposed is dependent on the very conservation programs that BPA is now threatening to ignore due to the low value it has given to resource acquisitions. Rather than attempt a detailed explanation of this here, with the chairman's permission, I would like to submit for the record the comments on the near-term resource policy provided by the Natural Resources Defense Council.

The coalition certainly does not wish to impose the expense of unnecessary conservation programs on the region, but fortunately, that is not the issue. Bonneville is robbing Peter to pay Paul. That is, faced with the tremendous revenue requirements necessitated by its obligations on WPPSS plants 1, 2, and 3, BPA is cutting costs in every way possible. While thriftiness is all to the good, the net result of this overzealous conservation budget cutting will be the construction and awful expense of future nuclear or coal powerplants. I did not include the question of billing credits in my prepared statement, frankly, because I forgot about them. The reason I think I forgot about them is because it seems that the Bonneville Power Administration has forgot about them. In the last years, Bonneville has had something on the order of 30 rap sessions, countless reams of paper, and has ended up with, as best we can estimate, a proposed billing credit policy that is so unworkable that I'm aware of any utility in the region that expects to use it as a means of resource acquisition.

SALES TO CALIFORNIA

Let me allow my written statement on low-income weatherization to stand, and then summarize this section on sales to California. For years it has been de rigueur among public interest advocates to oppose expansion of BPA sales to California and the Southwest. The reason was simple. The Northwest faced a serious threat of becoming a powerplant plantation for the Southwest electrical loads. Now, however, circumstances have changed. BPA has not. The Northwest and the Southwest may be able to consummate a mutually beneficial firm power sale agreement that could help the region finance its conservation programs. However, to date, BPA has done nothing to pursue this potential boom for the Northwest ratepayers.

Without going into details about the mechanism of sales, the Northwest has traditionally sold secondary, that is, surplus power, to the Southwest for very cheap prices, approximately 8 mills per kilowatt hour. Now that we are in an alleged surplus, according to the Bonneville estimates, BPA still is selling surplus power to California for 8 mills per kilowatt hour. However, if Bonneville would pursue conservation aggressively, it could firm up that surplus and provide firm sales in California, reaping on the order of 35 to 40 mills of payments from utilities in California and using those monies to aggressively pursue conservation.

NATIONAL ENVIRONMENTAL POLICY ACT

And finally before talking about legislative remedies to Bonneville's ignorance of the public interest, let me talk about its inconsistent adherence of the National Environmental Policy Act. When it is in BPA's interest to carry out the letter of the law to the most excruciatingly fine detail, it does that. When it is in Bonneville's perceived self-interest to ignore this springboard of policy development, it does that. The environmental impact statement process is no objective arbiter in BPA's hands; it is a political tool of tremendous value.

Soon after the passage of the act, BPA wanted to develop power sales contracts without allowing close scrutiny of their impacts on conservation or fish and wildlife protection; it circumvented NEPA to do so. Despite the fact that the drafting of the new power sales contracts was arguably the most significant event in the implementation of the act they determine what load the BPA will serve—BPA did not write an EIS. Instead, it claims that a statutory conflict existed; BPA must complete the contract process within 9 months and that was insufficient time to complete the EIS.

The disingenuity of this act is remarkable even for an agency of BPA's cleverness. First, the 9-month deadline, as everyone except BPA understood it, was only for the initial offer of contract. A full year of continued negotiations was to follow—plenty of time for NEPA review. However, BPA did no EIS, despite complaints from all quarters, including the chairman of the House Energy and Commerce Committee, Representative John Dingell. Well, as we now know, the power sales contracts were discussed, negotiated, changed and modified for 1 full year after Bonneville's refusal, and finally agreed to only last Saturday. A full 21 months was available to BPA for NEPA review. The score was BPA 1, NEPA 0.

In the spring of 1981, BPA became hesitant to move aggressively on conservation programs. For what reason I can't exactly say, but in any event, BPA seized on the problem of indoor air quality as a means of slowing its conservation programs. As a result, it slashed its conservation efforts and commissioned many a yearlong EIS on conservation and indoor air quality.

Since preparing my statement, I have just learned that the draft EIS on indoor air quality has been completed and is out. It predicts some 9,000 cancer deaths for energy conservation in the Pacific Northwest. That's a remarkable figure; a very scary one. There's only one problem with that figure. BPA did not consider any mitigating measures in its EIS, despite the fact that they're on the shelf and available; several mitigating measures such as air-to-air heat exchangers that indicate that a tightly sealed house using this air-to-air heat exchanger actually has a better indoor air quality than a leaky house on a calm day. The score is BPA 2, NEPA 0.

Since NEPA was enacted in 1969, BPA has done no substantial assessment of the impacts its policies and operations have had on the fish and wildlife resources of the Columbia River system. It has never comprehensively examined the options for better managing the power system to benefit the fish. This is of course true of the previous 32 years of its existence as well. Now, however, BPA has determined that the measures contained in the forthcoming fish and wildlife program of the Northwest Power Planning Council will be the subject of a comprehensive 2-year or more environmental impact statement. The measures mandated by the Council may be in jeopardy during that EIS process and will certainly be the subject of political maneuvering as BPA and its consultants are able to frame the issues and arguments. BPA 3, NEPA 0.

And finally in the rates area, BPA has just completed its 1982 wholesale rate increase procedure. Just as in the last two increases resulting in an approximately 500-percent jump in its rates in less than 3 years, BPA did not reform its rate structure in the least. For years, however, critics and analysts, including official parties to the BPA rate cases, such as the California Energy Commission, have advocated that BPA tier its rate structure. That is, that it provide price signals to its customers. Not only has Bonneville never done so, Bonneville has never even considered it. If one looks at the final Environmental Impact Statement on the 1982 wholesale rate increase, one finds considered analysis of such realistic ideas, never once seriously proposed by a credible party, as charging marginal cost rates for all power sales by BPA. But serious analysis of tiered rate structures, a concept sufficiently in the mainstream that such a rate structure was the subject of a tie, 21 to 21 vote, in the House Interior Committee during consideration of the Power Act, was never done. BPA 4, NEPA 0.

LEGISLATIVE REMEDIES

These are some of the more glaring problems that I have perceived in BPA's implementation of the Power Act. It has woven a web of abuse above the public interest and congressional intent. I have for some time given considerable thought to the questions you posed in your hearing announcement.

How can BPA be brought under control? I thought I was going to be proposing a new idea today when I suggested the following, but little did I know that in fact you were going to be asking many of the witnesses before me whether they thought it was a good idea before I had even proposed it. To me the answer to that question is analogous to the means Congress employs to control Federal agencies' spending on programs previously authorized: the budget.

In 8 short months, the Northwest Power Planning Council will adopt the regional power and conservation plan. That plan will mandate BPA's resource acquisition actions for the ensuing 20 years. But how can the council insure that BPA carries out that plan? The administrator of Bonneville has already said that he thinks it's advisory. If BPA carries out the plan the way it has implemented other parts of the act, we are in serious trouble. BPA is, of course, subject to the Congressional Appropriations Committee's review of its budget.

There is, however, no realistic possibility of a Senator, Congressman or committee staff person being able to competently review the full BPA budget in the necessary detail. That is a job requiring a full understanding of the BPA bureaucracy and the components of the regional plan. Only the Power Council can provide an adequate review and critique.

However, as you know, there are constitutional problems, as they've been explained to me, with State appointed bodies, such as the Power Council, with an interstate compact approving a Federal agency's budget. While I might opt myself for making the council Bonneville's minioffice of management and budget, that is, rather than Bonneville reviewing the council's budget, it should be the other way around, that the council should be reviewing and approving BPA's budget before it goes into the Department of Energy and then to Congress.

There may be another means that does not run into potential constitutional problems. By statute, an amendment to section 4(j) of the Power Act might be the appropriate place. The council should be required to review and provide detailed recommendations as to the appropriate changes in BPA's budget. These comments and recommendations should be submitted to the OMB and to both Congressional Appropriations Committees before hearings on BPA's budget.

I note in your questions in anticipating your question about the constitutional issue, section 4(a) of the act sets up a power council appointed by the Governors. Section 4(b) is the so-called safety net that provides that should that power council appointed by the Governors be found to be unconstitutional, that the Secretary of Energy shall appoint another council, one that would be Federal.

If one was interested in proposing a means of the council reviewing BPA's budget, a similar structure could be used; that is, an initial proposal would be that the council should approve BPA's budget and the fallback should the initial idea be found unconstitutional—like section 4(b)—that there be a more conservative, surely constitutional angle, such as just reviewing their budget and recommending changes.

In closing, let me point out, Mr. Chairman, the significance to the Pacific Northwest of BPA's foot dragging. As you well know, the region's economy is in bad shape. Hope for economic recovery and reduction in unemployment in the near future is not particularly good as our power rates continue to skyrocket. Yet, aggressive conservation programs can hold rates down because they cost substantially less than powerplants. They can create jobs, because conservation creates two to four times as many jobs as thermal power plant development, and they can make a power system more productive through firming up our secondary power availability.

The Northwest Conservation Act Coalition has prepared a model electric power and conservation plan for the Pacific Northwest. In it, we demonstrate how the region can meet its entire electric power load through the year 2000 without building any new thermal power plants beyond WPPSS unit 2 and Colstrip unit 3. Instead, the region could cost-effectively utilize job creating conservation efforts. However, the projection of needing no new coal or nuclear powerplants depends on the issue of the implementation of an aggressive program.

BPA to date has shown no interest in the near future of implementing these programs. The people of the Northwest should know that a major Federal agency which holds considerable sway over their economic future is doing little to improve that future. Thank you.

Senator BAUCUS. Thank you, and I apologize for rushing you. Your full statement will be part of the record. In addition to that, I'm going to include your model plan for electric power as part of the record as well. I've paged through it, and it's very interesting.[1]

[The prepared statement of Mr. Reis follows:]

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[1] The model plan for electric power, referred to by Senator Baucus, appears in the appendix.

PREPARED STATEMENT OF MARK M. REIS

Mr. Chairman, my name is Mark M. Reis; I serve as Director of the Northwest Conservation Act Coalition. Thank you for the opportunity to testify today. I commend you and the Subcommittee for your interest in the means of making the Bonneville Power Administration more responsive to the needs and desires of the people and states of the Pacific Northwest.

The Northwest Conservation Act Coalition is composed of some 37 citizen, labor, environmental and ratepayer organizations throughout the Pacific Northwest. The Coalition was formed, and its member organizations are working, to insure the best possible implementation of the Northwest Conservation and Power Act. That is, our goal is that the conservation, renewable resource, fish protection and public participation promises of the Act are implemented as intended. That is a formidable task and, unfortunately, the Bonneville Power Administration is making that task a great deal more difficult.

In my testimony today, I will not address one very important issue, the siting and consideration of transmission lines and other power facilities. One of the Coalition's member organizations and its affiliates here today, the Northern Plains Resource Council, is far more capable than I of treating these issues. I will, however, address several important issues involved in BPA's implementation of the Conservation and Power Act, and then relate them to the first two questions posed in the hearing announcement: (1) how to make BPA more responsive to state and local government concerns? and (2) how might the Northwest Power Planning Council best help improve BPA's responsiveness to state concerns?

Specifically, I will discuss:

- Conservation and Resource Acquisition,
- Low-Income Weatherization,
- Sales of Power to the Southwest, and
- BPA's Inconsistent Adherence to the National Environmental Policy Act.

Each of these issues points up BPA's selective implementation of the Act. When it is in BPA's bureaucratic self-interest to follow the intent of the law, it does; when the letter or intent of the law would require it to change in a way it does not wish to, BPA arrogantly turns up its nose, averts its eyes and goes on its (existing) merry way. The Conservation and Power Act directed a major change in the direction, priorities and goals of the Bonneville Power Administration. To date, BPA has demonstrated little awareness of that mandated change. As I will propose later in my testimony, the only means of which I am aware to make BPA responsive to its new mandate is to gain control of BPA's budget. Prior to discussing possible legislative remedies, let me describe the problems as I see them.

Conservation / Renewable Resource Acquisition

The Act states in no uncertain terms that the Administrator is to acquire all cost-effective conservation and renewable resources available to him--even prior to the adoption of the Regional Conservation and Power Plan by the Northwest Power Planning Council (section 6 [a]). Despite this unmistakable mandate, it took BPA a full year to get in place its short-term utility conservation agreements.
BPA still--almost two full years after the Act's passage--has not completed long-term conservation agreements. In neither the short-term nor the draft long-term agreements is there a substantial role for local governments.

Worse are the facts that BPA has proposed and is now implementing--without public comment--a low-income weatherization program that does not address the needs of low-income people, and is writing an unnecessarily lengthy Environmental Support Statement on the effects of home weatherization on Indoor Air Quality (I will discuss both of these subjects below).

The bottom line of BPA's conservation efforts can be determined by examining its expenditures. I have been informed that of the $170 million budgeted for conservation in FY 1982, BPA will spend approximately $30 million, less than 20%. BPA seems simply uninterested in developing conservation resources.

The common response to criticism of BPA's conservation programs is, "But the region now has a power surplus; we don't need to push conservation." I wish that plaint could be believed. It can't. When one examines the recently published Proposed Near Term Resource Policy (47 Fed. Reg. 30811 [1982]), wherein BPA addresses resource acquisition in the near future--that is, during the current surplus, one finds that it has underestimated the value of conservation by as much as 60%. One also finds that the forecasted shortage is dependent on the very conservation programs that BPA is threatening to ignore due to the low value (35 mills/kwh) it has given to resource acquisitions. (Rather than attempt a detailed explication here, I would, with the Chairman's permission, submit for the record the Comments of the Natural Resources Defense Council, 8/13/82.)

The Coalition certainly does not want to impose the expense of unnecessary conservation programs on Northwest ratepayers. Fortunately that is not the issue. With its shortsighted Near-Term Resource Policy, BPA is robbing Peter to pay Paul. That is, faced with the tremendous revenue requirements necessitated by its obligations on Washington Public Power Supply System plants 1, 2 and 3, BPA is cutting costs in every place possible. Thriftiness is all to the good, but the net result of this overzealous conservation budget cutting will be the construction and awful expense of future nuclear or coal power plants.

BPA's "least-cost resource mix" includes the acquisition of a nuclear power plant in the 1990's. In assessing the costs of power plant acquisition, the analysis assumes that WPPSS 4 and 5 could be acquired for 46 mills/kwh (levelized 1982 dollars)--the cost of completing these plants. In passing the Power Act, the Congress very specifically rejected the suggestion that such costs of plants "under construction" could be excluded. There is no legal justification for this analytic assumption; there is no practical reason to even countenance the idea.

That BPA would consider the acquisition of a nuclear power plant at the same time as ignoring the tremendously attractive option of aggressively developing conservation with the financial assistance of California sales is ludicrous. Unfortunately it is but one aspect of a larger pattern.

Low-Income Weatherization

BPA's Low-Income Weatherization Program suffers from the same lack of commitment on the part of the BPA as do the rest of its conservation programs. However, it suffers other, more specific problems.

Outreach. BPA has not included a significant means of reaching the low-income ratepayers who might take advantage of this program. Educating and involving the low-income is a very different matter from reaching the middle or upper-class residential power user. Relying on a bill-stuffer and the consumer's call to the utility for further information will likely reap no interest on the part of the low-income consumer. Monies for canvassing low-income neighborhoods must be included.

Subsidy level. BPA proposes to pay a one-time fee of 29.2 cents/kwh for low-income weatherization. This is the same amount as it will pay for all other conservation savings. On a life-cycle basis, this is the equivalent of only 17 mills/kwh, less than half the amount BPA is proposing for new resource acquisition noted above. How BPA can offer to pay low-income people half of the value of the energy they would save--while not fully reimbursing them--is beyond me. One argument supporting this approach is that the BPA low-income program monies will be supplemented by Federal Block Grant funds. However, these funds are subject to budget cuts at any time and, should they be cut off, the BPA program would grind to a halt.

A kilowatt hour saved by a low-income person is just as valuable as any other. So long as its acquisition is cost-effective--as would be a good low-income program--that kilowatt hour savings should be pursued. BPA's niggardly low-income weatherization program promises to ignore substantial conservation savings.

Sales to California

For years it has been de riqueur among public interest advocates to oppose expansion of BPA sales to California and the Southwest. The reason was simple: the Northwest faced a serious threat of becoming a power plant plantation for the Southwest electrical loads. Now, however, circumstances have changed. The Northwest and the Southwest may be able to consummate a mutually beneficial firm power sale agreement that could help the region finance its conservation programs. To date, the BPA has done little to pursue this potential boon for the region.

Traditionally, BPA has sold "secondary" power to California utilities. These sales are "non-firm," that is, they cannot be firmly counted on by the California recipients; if the power is needed in the Northwest, it will be recalled. Now, due to a power surplus in the region, those non-firm sales can be turned into firm sales. The benefit for the Northwest of doing so is profound: the approximately 8 mills/kwh the region now receives can be increased perhaps fivefold.

Portland General Electric has recently contracted with Pacific Gas and Electric for the firm sale of about 400 megawatts of power for approximately 40 mills/kwh. BPA continues to sell its secondary power at about 8 mills--even when it can project surplus power availability for the next ten years. What's worse, preliminary analysis suggests the availability of 2200 megawatts of underutilized Northwest-Southwest intertie capacity during future average water conditions. This capacity could be filled with "conservation energy." That is, exchange for California utilities' paying a reasonable price for firm power purchases--say 35 to 40 mills/kwh--the Northwest would "firm up" its sales through more aggressive conservation programs. Everyone would come out a winner: California utilities could count on power at a price lower than that of operating thermal power plants, and Northwest ratepayers would gain financing assistance for more aggressive conservation savings.

Inasmuch as it is a fair estimation of BPA's analysis, the Proposed Near-Term Resource Policy indicates that BPA has to date ignored this very attractive possibility--at a substantial opportunity cost to the Northwest ratepayers.

NEPA Compliance

BPA's "compliance" with the requirements of the National Environmental Policy Act is a most curious enterprise. "Selective" and "innovative" are two of the less poignant adjectives that might be used. Whatever the description, the concept is clear: when it is in BPA's perceived self-interest to ignore this soundingboard of policy development, it does; when it is in BPA's interest to carry out the letter of the law to the most excruciatingly fine detail, it does that. The Environmental Impact Statement process is no objective arbiter in BPA's hands. It is a political tool of great value.

Power Sales Contracts. When, soon after passage of the Act, BPA wanted to develop power sales contracts without allowing close scrutiny of their impacts on conservation or fish and wildlife protection, it circumvented NEPA. Despite the fact that the drafting of the new power sales contracts was arguably the most significant event in the implementation of the Act--they determine what load the BPA must serve--BPA did not write an EIS. Instead, it claimed that a statutory conflict existed: BPA must complete the contract process within nine months and that was insufficient time to complete the EIS. The disingenuity of this act is remarkable even for an agency of BPA's cleverness. First, the nine-month deadline as everyone--except BPA--understood it, was for the initial offer only. A full year of continued negotiations was to follow--plenty of time for NEPA review. Complaints were heard from all quarters, including Chairman of the House Energy and Commerce Committee, Representative John Dingell. But BPA held firm: no Contract. EIS was done.

As we now know, the power sales contracts were discussed, negotiated, changed, modified for a full year and, finally, agreed to just last Saturday. A full 21 months was available to BPA for a NEPA review. Score: BPA 1, NEPA 0.

Conservation Programs. In the spring of 1981, BPA became hesitant to move aggressively on conservation programs. Whether due to pressure from its utility customers or for some other reason, I cannot determine. But, in any event, BPA seized on the "problem" of Indoor Air Quality as a means of slowing its conservation programs. Fearful of endangering the health of Northwesterners, BPA slashed its conservation efforts and commissioned a several-year-long EIS on Conservation and Indoor Air Quality.

(Indoor Air Pollution is a problem, but a soluble problem. The problem occurs when a home is tightened [weatherized], and air contaminants cannot escape. Studies indicate, however, that a properly insulated and sealed home with an air-to-air heat exchanger actually has a better and more healthy indoor environment than a leaky, uninsulated home on a calm day.)

So, while BPA awaits the findings from its EIS, substantial numbers of homes are ineligible for full BPA programs and the ratepayer will have to bear the cost of going back to finish the job later. Score: BPA 2, NEPA 0.

Fish and Wildlife Protection. Since NEPA was enacted in 1969, BPA has done no substantial assessment of the impacts its policies and operations have had on the fish and wildlife resources of the Columbia River system. It has never comprehensively examined the options for better managing the power system to benefit the fish. This, of course, is true of the previous 32 years of its existence, as well.

Now, however, BPA has determined that the measures contained in the forthcoming fish and wildlife program of the Power Council will be the subject of a comprehensive EIS, taking up to three years. The measures mandated by the Council may be in jeopardy during that EIS Process and will certainly be the subject of political maneuvering as BPA and its consultants are able to frame the issues and arguments. Score: BPA 3, NEPA 0.

Rates. BPA has just completed its 1982 Wholesale Rate Increase procedure. Just as in the last two increases resulting in an approximately 500% jump in its rates in less than three years, BPA did not reform its rate structure in the least. For years, critics and analysts--including official parties to the case such as the California Energy Commission--have advocated that BPA tier its rate structure. That is, that it provide price signals to its customers. Not only has it never done so, BPA has never even considered it.

If one looks at the Final EIS on the 1982 Wholesale Rate Increase, one finds considered analysis of such "realistic" ideas--never once seriously proposed by a credible party--as charging marginal cost rates for all power sales by BPA. But serious analysis of tiered rate structures (a concept sufficiently in the mainstream that such a rate structure was the subject of a tie vote (21-21) in the House Interior Committee during consideration of the Power Act) was done. Score: BPA 4, NEPA 0.

Mr. Chairman, those are some of the more glaring problems I perceive in BPA's implementation of the Power Act. I have for some time given considerable thought to the questions you posed in your hearing announcement: How can BPA be brought under control? To me, the answer to that question is analogous to the means Congress employs to control federal agencies' spending on programs previously authorized: the budget.

In eight short months, the Northwest Power Planning Council will adopt the Regional Power and Conservation Plan; that Plan will mandate BPA's resource acquisition actions for the ensuing 20 years. But how can the Council insure that BPA carries out that Plan? If BPA carries out the Plan the way it has implemented other parts of the Act, we are in trouble.

BPA is, of course, subject to the Congressional Appropriations Committee's review of its budget. There is, however, no realistic possibility of a Senator, Congressman or Committee staff person being able to competently review the BPA budget in the necessary detail. That is a job requiring a full understanding of the BPA bureaucracy and the components of the Regional Plan. Only the Power Council can provide an adequate review and critique. However, as you know, there are constitutional problems with an Interstate Compact, such as the Council approving a Federal agency's budget. While making the Council BPA's mini-OMB might be the best answer, there may be another means. By statute--an amendment to section 4(j) of PL 96-501 may be appropriate--the Council should be required to review and provide detailed recommendations as to appropriate changes in BPA's budget. These comments and recommendations should be submitted to the OMB and both Congressional Appropriations Committees before hearings on the budget.

Mr. Chairman, there are many other more specific recommendations I would have for other Congressional direction to override some of BPA's foot-dragging. However, this suggestion of the means of overseeing BPA's budget is the simplest and, I believe, the most effective.

Thank you again for the opportunity to apepar today. I would be happy to answer any questions.

Senator **Baucus**. We'll next have Mr. Halvorson. I have a few more questions to ask Mr. Halvorson. We'll try to make this brief too so you can catch your plane. So that the other witnesses are getting ready, I'm going to ask that each of the other witnesses, when their panel comes up, each witness, 5 minutes. So be thinking how you can summarize and get right to the heart of the matter in 5 minutes. Your full statements, however, will be included in the record.

Mr. Halvorson, do you have any written guidelines for your preconstruction activities to insure that rights of property owners are not abused?

Mr. **Halvorson**. Bonneville includes in its, in the construction specifications and standards such directions, yes, Senator.

Senator **Baucus**. Do you have it for Bonneville officials?

Mr. **Halvorson**. I beg your pardon?

Senator **Baucus**. Do you have guidelines for Bonneville officials?

Mr. **Halvorson**. I think there are no internal directions beyond the Bonneville manual, which would not be specific in this area, as far as I recall.

Senator **Baucus**. Could you check on that and see if there are any guidelines at all for Bonneville officials, and if there are, please supply those for the record?

Mr. **Halvorson**. Yes.

Senator **Baucus**. Would you also please supply for the record a copy of the document you submitted to Congress in order to secure congressional authorization for the Colstrip lines?

Mr. **Halvorson**. All right, Senator.

Senator **Baucus**. I'm wondering too if you have any thoughts how we can overcome the problems mentioned by Mr. Colbo this morning concerning the National Environmental Policy Act, particularly with respect to whether BPA could move more quickly to initiate this review of the council's fish plan?

Mr. **Halvorson**. We do have some material on that and we can provide that to you, Senator.

Senator **Baucus**. Do you know what the nature of that material is?

Mr. **Halvorson**. Essentially, a review of our proposed NEPA response upon receipt of the fish program from the regional council. There is some history of our working with the council's staff and with other responsible Federal and State agencies with respect to——

Senator **Baucus**. Why are you waiting——

Mr. **Halvorson** [continuing]. The fish program.

Senator **Baucus**. Why are you waiting for that?

Mr. **Halvorson**. We have no program at the moment. We have attempted to consider how this might be instituted early, and what we've been doing is making preparatory steps, but in order even to scope any environmental effort, you have to have some idea of what the program is, and the regional council has not yet selected that program. What we have done in part, Senator, is divide what we expect to receive into about three parts. We're anticipating some research and development suggestions, and we think in those we'll be able to move very quickly on them. We anticipate that a second component of the program would include site specific matters, perhaps changes at the hydro facilities having to do with fish passage, and we have been in conversation with the Corps of Engineers regarding the doing of a small site specific EIS.

Senator BAUCUS. There's no legal impediment to begin the NEPA process though, is there?

Mr. HALVORSON. Once the program is determined; what is it that they want us to do.

Senator BAUCUS. But so far as you know, there's no legal prohibition; there's nothing that makes it impossible to——

Mr. HALVORSON. No, once we know what that program is, then we'd be able to start, there'd be no impediment to it.

Senator BAUCUS. I have here a newspaper article, a copy of an article that's dated June 2, 1982. It's an Independent Record article. Essentially, the article claims that BPA obstructed a news reporter's rights under the Freedom of Information Act to get certain information from BPA. We talked about this this morning, and you mentioned that you were not aware of this incident, and I appreciate that, but I'm wondering if you could, for the record, look at this incident and I'll give you a copy of the article so that you can respond to it.

Mr. HALVORSON. When I was questioned, Senator, I was aware of the news story and I made some preliminary inquiry and no one was aware of such a denial, but I'll make further inquiry and supply that for the record.

[See under question 2 in the question-and-answer section of the appendix.]

Senator BAUCUS. OK, I'd appreciate that very much. And I'd also appreciate your submission of the lists of the many BPA meetings that you conducted in Montana, because I do know there have been a good number of meetings and they do help very much. I'm wondering though if you could provide for each meeting on the list a brief discussion of what BPA learned from each of those meetings. In other words, what were the citizen or State government suggestions you heard, which ones you adopted, which ones you discarded; the degree to which those meetings changed or did not change BPA's mind. The whole point of all this is to not only be concerned about the quantity of meetings, but also the quality of meetings. You know, it's one thing for any of us to have a meeting, but it's something else for that meeting to amount to something. Frankly, I think too often life has too many meetings; too many organizations meet too much and don't accomplish very much. I'm trying to encourage BPA, in fact, encourage all of us, to make the best use of our time here, so it would be helpful if you could give a brief statement of what you learned from each of those meetings, and what you haven't learned too, for that matter.

Mr. HALVORSON. We may be able to respond in a more general sense. A person such as Rick Lacey can identify to the success of some of the meetings and the actions that BPA took, as he has. Let me see what we can do about that and try to give you information in terms of the results of the meetings and we'll identify it as well as we can. I'm not sure what kind of specific information we can identify as coming from each meeting, but we'll make the effort.

Senator BAUCUS. Don't BPA personnel take notes at meetings; write summaries of each meeting?

Mr. HALVORSON. That's correct. Usually the report is fairly comprehensive. We will be looking at those and see what we can—how we can assemble that in terms of results for your information.

Senator BAUCUS. In that same regard, if BPA has learned anything from this hearing today, I'd like to have that submitted for the record as well.

Mr. HALVORSON. Everything we have learned, Senator?

Senator BAUCUS. Anything you care to submit for the record. You know, whatever makes sense and is productive; anything that's productive. Recently BPA proposed a 50-percent increase in rates for some classes of customers. My question is was this in order to speed up BPA repayment of the Federal hydrosystem debt or to help cover the costs of the WPPSS matter?

Mr. HALVORSON. It's a combination of both of those. One of the major forces driving the rate up is the cost of the supply system plants, which is the 1, 2, and 3 plants, which are being picked up in part by BPA, and that's a significant part of the present rate increase.

Senator BAUCUS. What portion is attributable to WPPSS and which to speeding up the repayment schedule?

Mr. HALVORSON. I think—can I provide that for the record, because——

Senator BAUCUS. Yes, sure. Can you give me some rough approximation now?

Mr. HALVORSON. It's my recollection that it's about $660 million for the supply system plants and about $220 some million for repayment schedules, out of a total budget of about $2.2 billion.

Senator BAUCUS. Did you conduct an economic analysis concerning the impact of this increase on those affected?

Mr. HALVORSON. Well, the rates themselves were the product of a great deal of work by BPA and a 7-week rate hearing in which something over 30 of the BPA customers participated principally in an adversary position. There was a great deal of cross-examination of rate information and a review of the rates themselves, and the amount, the economic indicators for the rates. The entire matter was very aggressively contested by those present.

Senator BAUCUS. So did you conduct any analysis in any written form?

Mr. HALVORSON. I have with me a copy of the administrator's decision following the rate hearings. Could I offer that for the record?

Senator BAUCUS. Yes, if——

Mr. HALVORSON. It shows a fairly extensive summary and recapitulation of what we did.

Senator BAUCUS. If it's relevant; is it relevant?

Mr. HALVORSON. I believe it is; yes. It describes in its entirety what we went through in our rate process, including the efforts of the hearing.

Senator BAUCUS. That would be fine. One final question. Do you have any written guidelines for surveyors and others who make contact with landowners concerning possible routings of proposed transmission lines?

Mr. HALVORSON. I believe we do, but I'd like to ask Mr. Frick if he could respond to that.

Senator BAUCUS. Mr. Frick, do you have those guidelines?

Mr. FRICK. I'll supply them; yes.

[See under question 13 in the question-and-answer section of the appendix.]

Senator BAUCUS. OK, that would be great. That's it. Thank you very much and I hope you make your plane.

Mr. HALVORSON. Thank you, Senator.

Senator BAUCUS. Thank you very much for coming. We appreciate it. Our next panel will include all the remaining witnesses. Ed Argenbright, Superintendent of Public Instruction of Montana; Jim Mayes, operating engineers; Bill Edelman; Bob Ream; Carter Williams. Have I missed anyone?

Mr. LEWIN. Stuart Lewin.

Senator BAUCUS. We don't have you here, but why don't you come on up.

Mr. WILLIAMS. This is Larry Lattin. He'll testify along with me.

Senator BAUCUS. Jonathan Motl. Are you Jonathan?

Mr. MOTL. Yes.

Senator BAUCUS. Yes, you're here; I didn't see you. I'm sorry. First is Ed. Why don't you proceed, Ed.

STATEMENT OF ED ARGENBRIGHT, SUPERINTENDENT OF PUBLIC INSTRUCTION, MONTANA

Mr. ARGENBRIGHT. I'm Ed Argenbright. I'm the State superintendent of Public Instruction and I——

Senator BAUCUS. I'll repeat again, I'm going to have to hold you to 5 minutes, everybody, and I'm going to rigidly enforce it.

Mr. ARGENBRIGHT. I appreciate the opportunity to be here and my concern is with regard to the payment in lieu of taxes issue. I'm concerned about funding for Montana school districts, and it just seems to me that when Colstrip 3 and 4 were being considered, the school people and other local community people were given the information that that powerline would be an increased tax base. Indeed, that is happening up to Townsend, but from Townsend west where the BPA takes over, those additional structures do not add to the tax base and I feel that it is within the authority of the BPA folks to determine that they can make payments in lieu of taxes, whether they call it impact aid or whatever. It just seems to me that this is an issue that hould be underscored from the State level as well as the local community level.

Senator BAUCUS. Excuse me, you're saying that at first the counties and perhaps your office were led to believe that—and that one of the arguments in seeking your support was that the counties would be compensated?

Mr. ARGENBRIGHT. Yes, that's correct.

Senator BAUCUS. Was that by Montana Power?

Mr. ARGENBRIGHT. Well, the consortium or whoever it was that was dealing with the issue at the time. My office has intervened in that lawsuit that's originating out of Missoula County and we're seeking comparable payments from Bonneville Power. So we're just dissatisfied with the impact aid offered so far and believe that the tax loss, as well as the damage to the tax base, requires a more fair approach to the revenue issues that have been raised by the decision of Bonneville Power to build that line from Townsend to Hot Springs. So in a nutshell, that's what I'm concerned about, and thank you for the opportunity to make this statement.

Senator BAUCUS. You bet, Ed. If you have a complete statement too, that will be part of the record, as will all the statements. I appreciate that very much, and I understand and sympathize with your point. It's extremely important to the schools and education in Montana that those counties be compensated, so I appreciate that. Why don't we go on down the line there.

STATEMENT OF JIM MAYES, REPRESENTATIVE, INTERNATIONAL UNION OF OPERATING ENGINEERS

Mr. MAYES. I'm Jim Mayes. I represent Local 400 of the International Union of Operating Engineers.

Senator BAUCUS. I appreciate you coming, Jim.

Mr. MAYES. There has been a great deal of controversy over the building of BPA powerlines. The primary concern of the members of Local 400 is jobs for Montana workers. Montana, along with most of the Nation, suffers from high unemployment.

In July the unemployment rate was 8.1 percent and for the second month in a row the State's jobless rate was the highest its been for the particular month since the depression. So there were over 32,000 jobless in July. Local 400 has over 3,200 members. July is generally the peak of the season for our members, but over 40 percent of them were unemployed at that time. Our members have been hit hard with the economic recession the country is experiencing. They've also been hit hard by the cutback in Federal highway income. Over the last 5 years, the State received an average of nearly $100 million a year in highway income. In the last federal fiscal year Montana received $87.7 million.

This year Montana will receive only a little over $65 million, a cut of over 30 percent. Those cutbacks mean that there are 50 percent fewer of our members working on highways than in the past 5 years. High unemployment has lessened somewhat at local 400 this month because of some of our members are working on portions of the BPA powerlines. During the environmental impact hearing of the Department of Natural Resources prior to the building of units 1 and 2, BPA testified that few Montanans would qualify to perform the work.

This statement amazes me because the lines from Colstrip to Townsend and Boulder to Garrison are being built by union contractors who follow union hiring procedures. That means that those out of work will obviously be hired first. That means that Montana workers are being hired. On the Boulder to Garrison line, there are only three workers from out of State. On the Colstrip to Townsend line, all the workers are Montanans except for supervisory personnel. At the BPA Gold Creek substation being built by local subcontarctors, the work force is 100-percent Montainans. In contrast, the line from Townsend to Boulder has hired only a small percentage of Montana workers. IRBY claims that up to one-third of the workers will be Montanans. There are many who doubt the number will even come close to that. Currently there are a few Montanans working on that portion of the line.

While I'm of course involved with local 400 members, I'd like to emphasize that I'm speaking on behalf of all Montana workers as well. As Montanans will have to endure any negative impacts of the BPA powerline, it is only right that they at least have the opportunity of employment in the building of the line. This is especially important on the section from Garrison west because unemployment in the northwestern portion of our State is as high as 18 percent in some counties.

Hiring instate workers has a positive effect on all aspects of our State's economy. Montana workers purchase goods and services from Montana merchants, helping Montana business stay strong. They pay Montana taxes and contribute in many other ways to the improvement of their communities and their State. Out-of-State workers take most of their money back home to other States. They also have a negative socioeconomic impact on local communities and often place a burden on law enforcement agencies and social services, agencies funded by Montana taxpayers. Montana workers care about their communities and their State and are less likely to cause problems.

On behalf of the workers and the citizens of Montana, I would urge the subcommittee to consider legislation outlining a policy of instate hiring for the BPA project. Thank you for hearing our position.

Senator BAUCUS. Thank you very much, Jim.

STATEMENT OF WILLIAM H. EDELMAN, BOARD DIRECTOR, NORTHWEST SMALL HYDROELECTRIC ASSOCIATION

Mr. EDELMAN. Senator, I've already submitted written testimony. I'm a member of the board of directors of the Northwest Small Hydroelectric Association, a group of several hundred citizens and firms who are interested in developing small hydro. Rather than take the time to summarize it, I'd rather bring to your attention a situation that developed only yesterday afternoon, and it's a very germane to this whole situation of unilateral decisionmaking by the BPA, which has a great effect on the States in some instances.

What has happened is that the BPA is going to be able, through their activities, to subvert the whole process of avoided cost in the Northwest. The Montana Public Service Commission, for instance, has taken 2 years now ascertaining what the avoided cost of bringing new generation on line are for the investor-owned utilities. However, Pacific Power & Light's contract power buyer informed me recently that they, currently, will not enter into any new contracts with small power producers because they are considering reformulating their avoided cost figures using either the BPA's proposed 7F wholesale power rate or the 35-mil figure at which the BPA proposes to pay for new power acquisitions as set forth in its policy statement issued last March. Neither of those bear any relationship to the real avoided cost of the acquisition of new power. Since all the investor-owned utilities in Montana that are in Bonneville's area have joined the power pool, they are able to confuse the whole issue of avoided costs because of the ambiguity of whether the avoided cost should be the individual utility's cost of new generation or whether it should be BPA's cost to the pool.

I can understand BPA's reluctance to deal with the whole area of avoided cost, because if one spends billions of dollars on generation from which they do not get any kilowatts back then the BPA has an infinite avoided cost, so they have every reason not to want to discuss or deal with anyone in the region on that basis. Until the BPA does come up with a legitimate avoided cost, why the whole process determining avoided cost is available to the State regulatory agencies, the rural electric associations, the public utility districts, etcetera, will be meaningless. If the utilities can use Bonneville's fictitious numbers in avoided cost, then all avoided cost numbers are fictitious. I thank you, Senator.

Senator BAUCUS. Thanks, Bill. Next, Bob Ream.

STATEMENT OF BOB REAM, CANDIDATE, MONTANA HOUSE OF REPRESENTATIVES

Mr. REAM. My name is Bob Ream and I'm a candidate for the Montana House of Representatives in district 93. I mention that because my comments are based in large part on many, many discussions with ranchers and other landowners in the Missoula area, and, significantly, I think, the residents of urban residential areas. This district includes the majority of the BPA powerline routes through Missoula County, both the green line on the map that goes north of Missoula and the red line to the south of Missoula.

The role that BPA plays in this area has become, I think, increasingly frightening to the people because it appears to be a role of unchecked and absolute power. The BPA lacks sufficient checks on its authority. Our county attorney, Dusty Deschamps, very ably earlier today gave you a history of BPA involvement in Missoula County and I needn't go through that, but I did want to add that Dusty has played a very important role in the legal battle, and he's done that with the full support from the county commissioners and I think the majority of the people in Missoula County. As others have suggested earlier today, your committee is a very appropriate one to look into the initial authorization of the BPA to participate in this project, and particularly the term "integrated facilities," as has been brought up earlier.

Another very important authorization issue is the question of whether or not BPA is authorized to build the lines east of the Continental Divide. BPA's own attorneys have indicated that BPA can't build these lines east of the Continental Divide without specific authorization. Missoula County and others are seeking an expedited review of this matter in Federal appeals court; I believe that case was filed last Friday.

It is entirely possible that BPA will be ordered to obtain new congressional authorization for this project, and I think if that happens it is imperative that Congress add language to that authorization request that will protect Montana's interests. Conditions to be required should include, but not be limited to, payment in lieu of taxes, as has already been mentioned. Second, I think avoiding populated areas wherever alternatives around these areas exist; undergrounding of the line in urban areas if they cannot be avoided, and this issue has been particularly important in the Missoula area, and I think citizens are very strongly pushing that.

At first we were told by BPA that it was technically impossible. The next go-around they said it would cost 20 to 50 times more than aboveground lines, and in the recent EIS, they indicated it would cost 10 times more. If that's the case, so be it. Another point is compensation of landowners for property devaluation adjacent to rights-of-way. Another one that I feel is very important is offering a negotiable lease option to landowners for acquisition of rights-of-way.

When landowners in 1951 provided an easement to the BPA in perpetuity, they were only given a single, very minimal payment for the right-of-way across their land. I think we need a better system than that for providing payments to landowners, because landowners, if they're faced with an in perpetuity, need some kind of payment in perpetuity. The people of this State feel that they have been duped, and in truth, they have.

Working with the BPA is frustrating because the citizens of the State have no recourse; the BPA is apparently subject to no controls. I urge your committee to look into this matter. We've already talked about the solution of giving the Power Council increased authority, and I would certainly support such a move. Thank you.

Senator BAUCUS. Thank you, Bob, very much.

Jonathan?

STATEMENT OF JONATHAN MOTL, ATTORNEY, MONTANA COMMON CAUSE, REPRESENTING ROSE MAGNUSON, REPRESENTING COMMON CAUSE NORTHWEST ENERGY TASK FORCE

Mr. MOTL. My name is Jonathan Motl, an attorney and lobbyist for Montana Common Cause, and I'm here today to introduce into the record testimony that was written by and submitted by Rose Magnuson. Ms. Magnuson is a Missoula resident and she's a member of the Common Cause Northwest Energy Task Force. I do have copies of it, which I will give to your people, and I also have extra copies available. I would just summarize her concerns by saying like many other people, she raises questions concerning the responsiveness of the Bonneville Power Administration.

She raises questions concerning the interrelationship between the different governmental agencies and this large entity who is the Bonneville Power Administration. One point that she does make which maybe distinguishes her testimony from others is the fact that she's concerned that, as you study the relationships between these entities, that you allow for and create opportunities for citizens to participate. It's difficult to be a citizen in a very large and complex bureaucracy, and she calls that point to your attention and wants you to address that.

Senator BAUCUS. Thank you very much. I hope others keep that in mind too. Next I have Stuart Lewin.

STATEMENT OF STUART LEWIN, RESORT OWNER-OPERATOR, BOULDER, MONT.

Mr. LEWIN. I'm the owner and operator of the Boulder Hot Springs. It's a hot springs resort that was built in the 1869's. We sit on a major geothermal resource, on what's known as a KGA area, which would make it probably one of the major resources in this part of the State. Virtually nothing has been done with that resource other than to use it for its supposedly curative powers and as a resort over a period of time. A lot of the things that have been said I would also say and so I will just try to talk about what I think has happened with my project.

I've been involved in this project for about 5 years. As I see it from my limited point of view, what's happening in the economy and the filing of the SHPO, the State of Montana, in filing and making the hotel an historic place put it on the National Register of History Places—not only put the hotel on the Register, but also the view and put a measure of discussion on what the valley is like. This would be interesting because before the time that Bonneville burst upon the scene into the valley, it was a very quiet area where people had been coming for many, many years, besides the people that live there, for health reasons. They had come there to get away from the complex—from these kinds of meetings, upsets, and things, where they could spend some relatively peace and quiet, find their center and move on, and the atmosphere there and the springs themselves have been used for those purposes for years. I don't think any of that was really taken into consideration at anytime, the effect that these lines would have upon our particular area. As we've indicated, we've had no opportunity really at anytime to say anything about any of that.

It's all been decided by what Bonneville people call the Federal deciders, which I suppose is some level of authority that's been given to them someplace or another. We also feel we've been let down by the people of—by the various State agencies that are supposed to be looking out for our interests under the State Siting Act. They feel that based on what's been decided in district court that their hands are tied, but when the decision was made following Judge Battin's decision, one of the ladies on the board said, "Well, we have to build it someplace because we agreed before we would build it. I'm sorry that no one has a chance to give any input; it's not hearing process, but we'll just go along with it."

Basically, citizens of this State have not had an opportunity to decide where this line should be put, and I don't see any Federal preemption like you were indicating with Paul Smith in this area. I don't see why the people of this State, once need is determined, can't determine what area should be sacrificed for it, whether it should be the Boulder Valley or someplace else, but that kind of determination, in my opinion, was never made.

The other thing that I'd like to point out is we've been wanting to develop our resource as an alternate resource to fit within this grid, a usefulness. This man is indicating the difficulty he's having trying to get these people to buy his power. The fact that we're putting this kind of huge national force behind using coal will make those costs on these alternate energy resources perhaps noncompetitive, not possible at this point in time. Yet on the other hand, it seems to me that it's—at some point in time we're going to have to reevaluate where we are in this country. We're going to have to evaluate the value of the environment, the value of our lifestyle and what we think is worth spending energy on.

Yes, we have the power in this country to push through this kind of a line, but it's going to cost at these times to do that, but ultimately what will it mean to the citizens of the State. I don't think—or the people in this country—I don't think that those issues have been carefully addressed. I think NEPA tried to address those, tried to get us to develop other resources. I can only say that I think it's going to be more difficult because of Colstrip 3 and 4 for us to get the kind of development that we need at the Hot Springs to turn that into maybe an electrical generating plant or something else.

I feel that we've just been put through a buzz saw here in this State, and we're kind of reeling with the results of it, and actually at this point it's easy for the State officials and for BPA to say, "Well, all right, we'll try and work better together," but the end result is that right now they're ripping into the hills in the Boulder area and that area is being changed, and there really hasn't been any discussion of whether that ought to be done or not, or done there. Thank you.

Senator BAUCUS. Thank you. You make some good points. So far, there's just a lot of frustration. Next Carter Williams.

STATEMENT OF CARTER WILLIAMS, ATTORNEY, GREAT FALLS, MONT.

Mr. WILLIAMS. Thank you, Senator. My name is Carter Williams and I am an attorney living in Great Falls, Mont., but I'm also a part owner of one of the ranches that has been condemned by BPA.

I would like to address the issue here of the important legal rights that the Montana landowners lost and that the ranchers lost in Montana when Montana Power found out that it could no longer carry this hot potato football that Joe McElwain talked about and lateraled it off to BPA. BPA decided that they would run with it and build a transmission line, and these legal rights are quite important and they can be best illustrated by an example, a case history of the ranch that I have a minority interest in. Kyler Ranch has now been developed over 4 years—I mean four generations by the Kyler family. They have been very proud of it and I've been proud of my participation in it. They have been very particular not to build a lot of roads and to protect the natural scenery, and this has gone on for approximately 80 years.

It went along until BPA came along and Larry Lattin, who was married into a third generation of the Kylers and who is ranch manager, will tell you the lack of notice that we received before they determined that the corridor was going to go through our ranch. But from a point of view of what happened when they filed the condemnation action, I can speak rather clearly. On March 4, a declaration of taking was filed. I received a copy of it yesterday for the first time. Over 4 months later and 3 months after the complaint, notice and order were lodged or filed, I was served in the middle of July, and the order of possession, of course, provided that 30 days later they would take possession of approximately 90 acres of the Kyler Ranch. It happened, and I was served the paper—now this is a happenstance; I can't believe BPA did this on purpose—but I was served late on a Friday afternoon and I was just taking off out of my office for 2 weeks.

While on this vacation, I telephoned and another attorney in the office telephoned the U.S. attorney and asked for 5 more days. She told us that she had 155 condemnation cases; that her client, BPA, had told her not to grant any extensions of time. Now mind you, this is after they've had this—the declaration of taking 5 months earlier. Be that as it may, when I got back to the office, we got our objections to possession filed within the 5 days that I had left and promptly mailed a notice to BPA telling them that we had valid objections to the taking and asking them, despite the court order, if they would refrain from the taking.

Mr. Frick received this notice but it was responded to by another gentleman. The response was substantially the same as what Peter

Johnson testified to earlier today; that they have a congressional mandate, that they have complied with the law and that it is important that they stay on schedule. Consequently, they went into our ranch almost immediately after the 30 days was up. Right now they are building roads; they are cutting down timber; and they will be soon putting up some of these towers, and we have yet to have our day in court.

Now I can see that attorneys throughout the State of Montana are explaining to 155 different ranchers:

> Well, this is the way it is when BPA or a Federal agency takes over; you don't get your day in court. They take possession first and then after they've built—after they have the improvement built, then you may well get your day in court.

But by that time you can see what a court is going to do, particularly on our ranch where they will build a—be building these transmission tower 175 feet high. That's higher than any building in the State of Montana, and they will be building 14 to 18 of them on our ranch, and we will not have our day in court until they're all built, and I suspect that our day in court isn't going to mean very much. Now I'd like to compare that with the rights that we as a landowner have if the Montana Power had proceeded to carry the ball and build the transmission line.

By the way, I'm not any big advocate of Montana Power. I've spent a fair share of my professional life fighting them on rate cases and contract options and condemnation cases, but then I've fought them in the Montana courts where I had a fair chance.

First of all, if Montana Power did this, there would be a hearing before a judge before there was possession. Second, there would be just compensation determined by three commissioners before there was possession and we, the landowner, would get to pick up of the commissioners, and the commissioner we picked would have a hand in picking the third or neutral. Third, Montana Power would have to pay into the court the amount of just compensation that we demanded or that the commissioners allowed before they got possession. Fourth, Montana Power could make us an offer or they could rely upon the decision of the commissioners, and if we appealed that and got an increase in the award by a jury, we would get our costs paid, including the very expensive costs of an appraisal. And fifth, we would have an undeniable right to a jury. Now here in the Federal matter, the judge is probably—they can appoint a jury, but they probably will appoint a commission.

With 155 cases, Judge Hatfield is already overworked and he's only human and you cannot expect him to try 155 jury cases on these condemnations. This, by the way, points out something else that is wrong with this system and it's not necessarily inherent in the law. BPA doesn't have a valid, realistic appraisal before they go in and take possession. In our case they've offered something like $160 to $170 per acre for all of the damage that is being done to this ranch by this, some 90 acres, plus these rather grotesque towers that are going to be there.

Only now, long after they've gone in, have they hired a professional appraiser, not a staff appraiser, so that we would have some chance to settle this, and the fact that there are 155 cases filed is indicative that they're doing something wrong by riding roughshod—sure, they've complied with the present Federal law, but it is not making them any friends with the people who are being condemned, and frankly, I'm one of them. Thank you.

Senator BAUCUS. Thank you very much, Carter. I appreciate that. It helps to learn through a case history. The hearing record, as I mentioned before, will be open for 45 days, and if anyone here wants a copy of the testimony, there's a signup sheet here for you to sign. In addition to that, witnesses will automatically receive a copy anyway, so if you're a witness, you needn't sign up. If you're not a witness and you want a copy of the hearing record, please sign the sheet here.

I intend to follow up on the major questions you've asked in this hearing. I know other members of the Montana delegation will, too; we'll work together on this. These are issues that will not go away; these are issues that will be with us, I expect, for some time, but I hope with our cooperative efforts, those of us in the State who want to solve these problems, that they will be minimized at the very least so we won't be spending as much time with them as we otherwise might. Thank you all for coming. I appreciate the distances you've come and the time you've taken out of your busy day.

Mr. LATTIN. Excuse me, Senator.

Senator BAUCUS. Excuse me, I'm sorry. I thought Carter was speaking for you. Go ahead.

Mr. LATTIN. I wanted to follow up a little bit. I'll be very brief.

Senator BAUCUS. That's fine. I'm sorry. I didn't realize that.

STATEMENT OF LARRY LATTIN, RANCH MANAGER

Mr. LATTIN. I have in my briefcase a book written by K. Ross Toole who's a very respected historian and author, professor, and so forth, called "The Rape of the Great Plains" concerning these types of developments. The point, however, is that the book was—the first publication was in 1975, so I assume he did 2 or 3 years' research on that book.

In the front portion of the book he shows a map, it's a very crude map, with the proposed Colstrip generation facilities and the lines emanating from those facilities. Very interestingly, and I'm pegging this in at about 1972, there's a line drawn between Elkhorn and Boulder. Now this is prior to anybody ever knowing anything about—in this area—about it. In 1979, we took the offensive through the Northern Plains to find out what was going on and BPA initiated some meetings, rather, we initiated the meetings which they attended. But the point here is 7 years elapsed from the time they knew where the line was going until we knew anything about it. A bad way to do business.

They claim to be a self-supporting agency, and yet they can use eminent domain as a club because they're Feds, so when I say 2½—when I allude to 2½ Federal agencies, I'm speaking of the Forest Service, the BLM, and the half agency being BPA. They conspired covertly to condemn private land adjacent to Federal land, and they did this through "Federal decisionmakers," and I love that term. In other words, what they did is they decided to put this line through Federal lands, not once considering the private lands adjacent. In this respect the Kyler Ranch is not unique in this area, but, to this particular cause, we're very unique because we're flanked by Federal lands.

I have repeatedly told Bonneville Power that if they would move the line three-quarters to 1 mile east and put it on Federal ground, since they are a Federal entity, I would be willing to negotiate for the four or so towers it would take to go in a direct east to west line to get off the Kyler Ranch property. They have told me in no uncertain terms that they're not about to move the line; they never would, with the exception of the fact that very early at the outset they said they were going to run the line about 100 yards south of the main ranchhouse and the main ranch buildings and proceed to the freeway that's a little bit north of Boulder and continue on their way. Somebody said one time that it's very hard to negotiate when you're looking down the barrel of a gun.

Myself and others in the Boulder Valley told them that if they wanted to die very quickly, that that was the best way to do it, to start screwing with our meadow grounds and our homes and our calving areas and so on. They did at that time move the line to the north, and this would be one of the times that they would be patting themselves on the back for having cooperated with us. But just keep in mind that they were, in a very real sense, looking down the barrel of a gun when that happened; they didn't do it voluntarily.

As far as their EIS went on this project, it came about 75 years too late because many of our parents or grandparents could have used that to beat a Sears catalog all to hell in the little house on the prairie. It's worth about that much. For instance, they absolutely overlooked a good portion of the Elkhorn or the Tizer Basin elk herd, which winters, incidentally, on the Kyler Ranch.

In the 1975 season, there were 25 bulls taken out of one of our pastures; just one of our pastures, they took 25 bulls, and that constitutes a cow herd of somewhere between 250 and 300 head. Those elk winter on our ranch every winter, so if they want to put the line where the elk aren't, they should have put it on the Federal ground. It's true that the elk move back in the summer months, but the biggest portion of the year in our area is the winter, and that's when they winter on the ranch.

This is another, in my estimation, another good point for moving the line back on Federal ground. Now the line will bisect those wintering grounds. I would like you to keep in mind, Senator, that there is in Montana one business that generates in excess of $1 billion a year and that is agriculture. Westmoreland Coal does not and Montana Power does not; certainly Bonneville Power does not. Agriculture is what generates the most money in this State, so when you start messing with agriculture, you're messing with the primary economy of this State.

I've heard a lot said today about the Supremacy Clause, and I don't pretend that we're anywhere near this point now, but when you talk about supremacy in physiological terms, your belly is what's supreme; that's what dictates to you what you do or how much you're able to do, and if these agencies persist in shoving aside the wishes of agriculture, somewhere down the line, perhaps our grandchildren or maybe their children, are going to suffer for it, and I think that it's a very valid point that should be kept in mind. I don't claim to be supreme because I'm in agriculture. I'm just saying that that is the business in the State of Montana at this particular time.

In conclusion, I would like to say that we get absolutely nothing out of this line, with the exception of the final payment that Carter mentioned, which may or may not be just. We don't get any power; we don't get anything except the garbage; the aesthetic pollution of the sight of the towers, the very real corona, that is the leakage of the lines, electromagnetic pollution, which I'm sure is there. Furthermore, the mood of the people right now is, and has been for several years, more or less antigovernment, through high taxes, through any number of things, unemployment, et cetera, et cetera, et cetera, overspending on the part of the government. The BPA's highhanded methods to this point certainly have not made any friends for the government in the State of Montana. At least in this person, those agencies that were involved, meaning the Forest Service, the Bureau of Land Management and the Bonneville Power, have gained one very undying enemy. Thank you.

Senator BAUCUS. Thank you, very much, Larry. I too agree that the line in that area should have been moved over to Federal property. I must tell you, it's been very frustrating on our part to encourage BPA to move it over there. All of us learn all the time, and I think that BPA has learned a little bit from this hearing. I know that some of the agencies have probably learned from this hearing, and I know that I've learned from it. I just would ask all of us to take advantage of what we have learned and to put it together so, as I've said many times today, we're not spending quite as much time on this same point.

[The affidavit of Mr. Argenbright and prepared statements of Messrs. Edelman, Ream, and Mrs. Magnuson follow:]

PREPARED STATEMENT, BY AFFIDAVIT, OF ED ARGENBRIGHT

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
GREAT FALLS DIVISION

COUNTY OF MISSOULA and
RUSSELL K. PRICE,

Plaintiffs,

vs.

PETER JOHNSON, as administrator,
BONNEVILLE POWER ADMINISTRATION
and BONNEVILLE POWER
ADMINISTRATION,

Defendants.

Cause No. 82-87-G.F.

AFFIDAVIT

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

Ed Argenbright, being first duly sworn upon his oath, disposes and says:

I. That he is the elected Chief State School Officer of the State of Montana.

II. That as Chief State School Officer he is responsible for the administration and operation of the school foundation program for elementary and secondary schools in the State of Montana.

III. That property taxes provide substantial support for Montana schools both elementary and secondary on local and state levels.

IV. That power lines built by the consortium of investor electric utilities consisting of Montana Power Company, Pacific Power and Light, Washington Water Power Company, Puget Sound Power and Light Company and Portland General Electric Company have added to the property tax base of those Montana counties from Colstrip, Montana to Townsend, Montana and will generate additional tax dollars for the state equalization account of the Montana school foundation program as well as to local school districts in those counties.

V. That the remainder of the Twin 500KV transmission line which is the subject of this suit is to be built by the Bonneville Power Administration, an agency of the United States which has consistently refused to make payments similar to those made by the consortium as property taxes.

VI. Because of the refusal by Bonneville Power Administration to either make similar payments or negotiate with the consortium of investor owned electric utilities to make such payments to those counties and school districts from Townsend, Montana, to Hot Springs, Montana, substantial tax revenues will be lost to the school systems of the counties as well as to the school systems of the State of Montana approximating 3.6 million dollars per year.

VII.. That this loss of tax income to the schools of the counties through which the line will pass and the remainder of the counties benefited by the school equalization fund will result in the need for increased funding from property taxpayers as well as income taxpayers because of the need for additional general fund appropriations to the Montana school foundation program.

VIII. It is very important that payments made by Bonneville Power Administration or the consortium of electric utilities be made for the benefit of the schools of the affected counties and the state equalization account in order to prevent injury to school children, taxpayers, and citizens of the State of Montana.

IX. That the easements for this BPA project through state lands which are held in trust for schools are generating only $53,000 for the segment of the Twin 500KV line from Townsend to Garrison and that this amount will have a negligible impact on school funding in the future.

X. That the State Superintendent believes there is ample authority both in the contractural relationship between the consortium and BPA and in federal statutes governing the administration of the BPA to provide for payments substantially equal to those paid by the consortium of investor owned utilities between Townsend and Colstrip, Montana.

XI. That State Superintendent has as a member of the State Land Board aggressively pursued and attempted to encourage the Bonneville Power Administration to make such similar payments but has met with a steadfast refusal from the Bonneville Power Administration despite these demands.

XII. That the Office of Public Instruction has the technical expertise and background to analyze school district budgets for every school district in the State of Montana including those directly impacted by the Twin 500KV Power Line.

XIII. That the State Superintendent believes the impact of the Twin 500KV line on school district budgets will both directly impact schools where the line is located as well as schools statewide based on the structure of the elementary and secondary school system in the State of Montana, as well as the basis for funding that system on a local and statewide basis.

XIV. Further the State Superintendent will be able to aid the court in analyzing the impacts on school budgets both direct and indirect as a result of the construction of this power line.

XV. That the interests of the Superintendent of Public Instruction and local school districts would not be adequately ~~by existing parties~~ represented in this action.

XVI. That state taxation and education statutes with which the State Superintendent is involved will be at issue in this action.

Further affiant sayeth not.

Ed Argenbright, Superintendent

PREPARED STATEMENT OF WILLIAM H. EDELMAN

My name is William H. Edelman and I am President of Edelman Enterprises Inc., Route 1, Box 169, Ronan, Montana, 59864 which manufactures hydroelectric systems and develops small hydro sites. I am also on the Board of Directors of the Northwest Small Hydroelectric Association whose membership consists of several hundred individuals and firms who are actively interested in developing small hydro facilities in the Bonneville service area.

I would like to bring to the attention of Senator Baucus and all other interested parties the extremely adversarial posture of the BPA towards small hydro development. This position has amazed everyone concerned with the hydro industry because it was specifically mandated by the Northwest Power Planning Act that the only resource that was to be given higher priority than renewables was conservation. While the BPA has given lip service to implementing small hydro, action speaks louder than words. To date the BPA has not purchased a single kWH of electricity from a qualifying facility.

The BPA has become so adversarial that it rejected every respondent to its Request for Electric Generating Resources issued in October of 1981. In denying all of the proposals it used the specious argument that the site owners would not sign long term contracts at rates low enough to be acceptable to the BPA. However, the rates the BPA offered were less than half of the avoided cost of new generation as set forth by the various state regulatory agencies; Public Service Commission, etc. Many of the applicants, including our organization, never even received a response to our proposals. This arbitrary and arrogant action by the BPA has become standard operating procedure in its relationship with all of the small hydro developers.

The BPA insists that it is not subject to the provisions of PURPA which governs every other entity in the U.S.. This, and other such discriminatory decisions by the BPA, places all of the small power producers in an absolutely intolerable position. The only potential sale of their power is to investor-owned utilities because every Rural Electric Association maintains that its avoided cost is the wholesale rate it pays Bonneville (less than 20 mils which is less than 1/3 of the PURPA rate.) Also, every investor-owned utililty with which I am familiar now refuses to purchase small producers power which is not produced from a site in the investor-owned utility's service area. In every instance, they instructed us to deal with Bonneville as the ultimate purchaser to whom the REA's would be happy to wheel the power. However, the BPA adamantly refuses to enter into a power purchase contract with qualifying facilities.

A good illustration of how untenable is the situation of small power producers is contained in the BPA's recent policy statement on resource development and acquisition issued in July. The statement asserts that the BPA will attempt to formulate a program to acquire small renewable resources in fiscal 1983 but will only seek a limited number of acquisitions in fiscal 1983 and that a preconstruction funding guarantee program will not be formulated until fiscal 83 and 84. However, these programs and timeframes are completely contradictory to what various officials within the BPA bureaucracy have been telling the small power producers for years. As long ago as the end of 1980 the BPA assured us at numerous public meetings, and in private conversations, that the announcement of their program to acquire qualifying facilities power was imminent. I recall specifically a telephone conversation in early 1981 with Dr. Margaret Lambie, who was coordinating the BPA's small hydro program, in which she told us the announcement of the program would be made in the next few weeks and she even talked about the proposed price which would surely exceed 40 mils. Now I most certainly do not mean to imply that Dr. Lambie deliberately deceived us but I do think that she, as well as the rest of us in the industry, was a victim of policy flip flops by her superiors. Literally hundreds of small power producers took the BPA's assurances at face value and initiated the most intensive search for alternative energy sources ever seen in the Columbia Basin. After a great expenditure of time and money, this search produced hundreds of sites whose aggregate production was a significant factor in the region's electrical consumption.

However, the BPA's inability to implement a fair and reasonable program in a timely manner puts almost every developer of these sites in jeopardy due to the very specific time limits for development imposed by the Federal Energy Regulatory Commission. FERC only allows eighteen months for the Preliminary Permit information gathering to be completed and an exemption or license application to be filed. It is virtually certain in the light of the BPA's past record of indecision and vacillation that all of these permits will expire before the most recently proposed program can be effectuated. This policy, or lack thereof, has raised the level of risk so high that it has quite effectively stopped virtually all renewable resource development in the Northwest.

It is the opinion of some developers that the BPA is deliberately prolonging the acquisition of these resources so that they can be removed from the hands of private enterprise and be developed by public entities.

I do not, however, succumb to that level of paranoia. Rather, I would give the BPA credit for having raised the level of bureaucratic ineptitude to heights never before envisioned. After all, one must give the devil his due, they managed in just a few months to turn a shortage of 3500 megawatts into a decade long surplus even while eliminating four nuclear plants. It is hard to believe that an organization with that kind of record could be duplicitous effectively.

I have been in contact with numerous individuals and organizations concerned with the long term energy needs in the region and the opinion was almost unanimous that the Bonneville Power Authority is most of the problem. Congress should have known better than to expect a somnolent bureaucracy like the BPA to suddenly change its spots and formulate and effectuate creative policy decisions in a timely manner.

It would seem more reasonable to make the Planning Council permanent, give it broad policy making powers and relegate the BPA to its former role. This would, if nothing else, increase the perception of our citizens that they have a reasonable chance of controlling their fate. This feeling of powerlessness relative to the BPA is the most frustrating aspect for everyone involved in this whole fiasco be they citizens, small power producers, utilities or governmental bodies.

PREPARED STATEMENT OF BOB REAM

Remarks before the Senate Judiciary Committee Hearing - Helena, Montana
Senator Max Baucus

Senator Baucus, Committee Members, and Staff - Thank you for the opportunity to speak before you today. My name is Bob Ream and I am a candidate for the Montana House of Representatives from District 93. This House District includes the majority of the BPA powerline routes through Missoula County from the Missoula County line near Beavertail Hill on the east through Miller Creek on the southern route or Bonner, Milltown, the Rattlesnake and Grant Creek areas on the proposed northern route. For over two years, since BPA announced its plans to construct twin 500 kv lines from Townsend west through Missoula County, I have been involved in the struggle to make this unwieldy federal agency more accountable to the public, and more responsive to Montanans.

The role that the BPA plays is increasingly frightening to the people of this state because it appears to be a role of unchecked, and absolute power. The BPA lacks sufficient checks on its authority, and the issue of the powerlines across Montana is an illustration of this problem. I would urge the State to continue its legal action against BPA. Missoula County through its County Attorney has led the legal battle because the people of Missoula County are very upset with the process and the siting of these lines.

Your committee is a very appropriate one to look into the initial authorization of the BPA to participate in this project. The language of the authorization does not specify where the BPA would hook into the Montana Power lines, or even that they would build transmission lines. Indeed, it states that they would construct "integrating facilities" for the Colstrip Project. It is not surprising then that the authorization slipped through congress.

Another very important authorization issue is the question of whether or not BPA is authorized to build the lines east of the Continental Divide. BPA's own attorneys have indicated that the BPA can't build these lines east of the Continental Divide without specific authorization. Missoula County and others are seeking an expedited review of this matter in Federal Appeals Court, and it is entirely possible that BPA will be ordered to obtain new Congressional authorization for this project. It is imperative that Congress add language to that authorization request that will protect Montana's interests. Conditions to be required should include, but not be limited to:

a.) payment-in-lieu-of-taxes.
b.) avoiding populated areas wherever alternatives around these areas exist.
c.) undergrounding of the line in urban areas if they cannot be avoided.

d.) compensation of landowners for property devaluation adjacent to rights-of-way.

e.) offering a negotiable lease option to landowners for acquisition of rights-of-way.

and f.) in the future BPA should serve privately constructed generating units only by contracting to plan, build, operate and maintain new transmission lines; the ownership of the lines to remain with the private utilities.

BPA should seek new Congressional authorization, and we must not let such an opportunity to gain more control over BPA's activities in this state slip away.

In 1951, ranchers and other landowners in my district were forced to provide a 250 foot easement to the BPA "in perpetuity". That's a long time, and they were given a single, very minimal payment for the right-of-way across their land. Many of these landowners assert that they were told by the BPA that they would build a single 230kv transmission line across their land on 75 foot towers. However, the BPA built the lines on only half of the easement (125 feet) and then came back in 1980 and announced that they would put in twin 500kv lines on 170 foot towers on the other half, and indeed started doing survey work on the existing right-of-way to see what buildings and other structures were close to the right-of-way.

The people of this state feel that they have been duped, and in truth they have. Working with the BPA is frustrating because the citizens of the state have no recourse, and the BPA is apparently subject to no controls. I urge your Committee to look into this matter. One possible solution to the problem would be to give the Power Council increased authority over the BPA and oversight for its budget.

In the future, we in this state, want to make sure that a private utility cannot circumvent state laws by using the BPA's authority to ignore them. The people of Montana have passed strong siting laws for a good reason, and they want to see these laws respected. If I am elected to the state legislature, I will do what I can at that level to see that this can never happen again. I urge you, through your Committee, to do the same.

PREPARED STATEMENT OF ROSE MAGNUSON

[Read into record by Jonathan Motl, Helena attorney and Lobbyist for Montana Common Cause]

I am Rose Magnuson, Missoula resident and member of the Common Cause Regional Task Force comprised of Common Cause members from Idaho, Oregon, Washington and Montana. On behalf of the Task Force, thank you Senator Baucus, for holding this hearing and answering our call for congressional oversight of federal energy activities in the Northwest. We feel such oversight will help clear the way for more immediate and effective implementation of the Regional Power Act.

Over the past two years, our Task Force has been monitoring and lobbying on energy issues specific to the Northwest. On July 12, 1982 our Task Force sent a letter detailing certain concerns to Peter Johnson, Administrator of the Bonneville Power Administration. A copy of that letter is attached as Exhibit A and submitted for the hearing record. We request that, during your review of existing legislation and your consideration of amendments regarding separation of powers and issues, this sub-committee address the concerns expressed in questions contained in that letter.

In the context of this field hearing, our first concern is: Does Congress intend BPA to be bound by the procedural time-lines of state energy facility siting boards? For example, we were concerned when a recent court demand for a state siting decision shortened the 90-day response period established for joint departmental hearings by Montana's siting rules. It appears to us that legislative clarification of whether state schedules are to apply to federal agencies would lessen the need for court intervention in resource siting decisions. We are also concerned that the time period mandated for state review allow for rational and adequate deliberation with informed and effective citizen participation.

The second concern we would like to call to the subcommittee's attention is: When is it appropriate for BPA to build transmission lines? For example, is it appropriate for the BPA to build transmission lines if the power transmitted will predominately serve areas outside the Northwest? When is it appropriate to use federal powers of eminent domain? Is its use appropriate in the building of a proposed line to L.A. or to Phoenix if the power transmitted is predominently privately owned? What rates should be charged for the transmission of power over federally built lines when regional consumers are not directly served although the social, environmental and financial costs impact exclusively on those regional consumers?

I would also like to ask a personal question: Are the parameters of the BPA administrator's decision-making powers adequately defined or do more parameters need to be established? Is the BPA's current interpretation of its role mandated by the Regional Power Act consistent with what Congress intended?

Testimony presented to a Senate Sub-committee in Missoula last week indicated that the Administrator may not really be accountable to any entity, other than through the Congressional approval of the BPA budget. I would like to suggest now, as I did then, that I believe congressional definition is needed to guide the Administrator in exercising his discretion. The points I would like to see addressed are in the attached (as Exhibit B) copy of my August 26th statement.

I commend your efforts to delineate problems in the separation of powers. It is my understanding that this sub-committee is also seeking input regarding BPA's public involvement process and its relationship with the public. Our task force counterparts in Oregon will be submitting further comments and suggestions on that subject within the comment period. Thank you for this opportunity to make a statement to your sub-committee.

EXHIBIT A

OREGON
COMMON
CAUSE

1178 Chemeketa NE, Rm. 108, Salem, OR 97301 • 371-1106

Common Cause
Northwest Energy Task Force
317 S.E. 16th Avenue
Portland, Oregon 97214

July 12, 1982

Peter Johnson, Administrator
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

Dear Mr. Johnson:

Common Cause's objectives in the energy field are as follows:

1. Remove the institutional barriers to energy decision-making so that a rational and effective energy policy can be developed in a timely manner with informed and effective citizen participation.
2. Ensure that energy decision-making is open, accountable and free from special interest pressures.
3. Remedy the lack of diversity and flexibility in our energy system by working to promote conservation and development of alternative renewable resources.
4. Ensure that government agencies are adequately addressing the costs, the benefits and the trade-offs involved in energy decisions.

Common Cause supported passage of the Regional Power Act as a means to accomplish those objectives.

Through our monitoring efforts, we have become concerned about obstacles which may hinder smooth implementation of the Act. We would like to share those concerns and other inquiries with you.

Concerns

Conservation

1) BPA should not be forced to look to "off-budget financing" to fund conservation. Common Cause objects to any budget-cutting efforts that enlist BPA's conservation budget in the fight against inflation.

Reasons for Concern

- Budgetary restrictions which hamper cost-effective conservation programs represent a short-sighted policy. Conservation is a hedge against inflation fueled by rising energy costs. Conservation also promotes energy independence.
- The Regional Power Act was promoted as a way to finance energy conservation. Congress needs to fulfill that promise.

2) BPA could seize an opportunity to promote conservation by offering billing credits to participants in the power exchange contracts.

Reason for Concern

- Limiting billing credits to signatories of requirements contracts is a short-sighted policy. It is in the best interests of the region to encourage all utilities to conserve. Opportunities for conservation that are lost today may result in the need to acquire expensive generating facilities tomorrow.

- To the extent that exchange contract participants conserve, they will require less low cost power to be exchanged, thus keeping everyone's rates down.

Rates

1) BPA's rate proposals for the direct service industries are inequitable and are unlikely to promote conservation.

Reason for Concern

- The DSI's receive surplus rates for upper quartile power which has a history of infrequently being interrupted.

- Higher (more realistic and equitable) rates would promote conservation among the DSI's.

2) Surplus rates for out-of-region power buyers are inequitable to Northwest ratepayers.

Reasons for Concern

- The areas and people surrounding generating and transmission facilities bear the impacts of these projects while Southwest residents receive the benefits of cheap power.

- Surplus rates do not reflect the total system cost of producing or transmitting power.

Public Involvement

1) Some of BPA's public involvement activities have not fostered public understanding or facilitated meaningful citizen participation.

Instances

- Montana citizens have received contradictory information from various departments of BPA.

- Elected officials in Montana have not always had adequate notice of meetings or received timely responses from BPA.

- Some of PBA's reports could be written in simpler language.

Contracts

BPA's contract offerings, by not adhering to congressional intent, may be precipitating endless rounds of litigation.

Instances

- The DSI contracts have been judged by the courts to be an infringement of the preference clause.

- The DSI contracts do not have adequate fish and wildlife safeguards.

- The long-term power sales contracts were offered to utilities without preparation of an environmental impact statement.

Reason for Concern

- These actions may delay and/or hamper implementation of the Northwest Power Planning Council's regional energy plan.

Initiative 394

- Common Cause believes that the bondholder's suit against Washington State's Initiative 394 should not be payed for by BPA's ratepayers.

Inquiries

- Are transmission lines routed in a manner designed to minimize the amount of electricity lost in transmission?
- When is it appropriate for BPA to build transmission lines?
- Are wheeling rates keeping pace with inflation?
- Will an upgraded or expanded southwest intertie promote conservation?
- Are federal agencies bound by the procedural timeliness of state energy facility siting boards?
- Are rates for firm power equitable and do they promote conservation?
- Considering the power deficits projected for the 1990's, should BPA be pursuing conservation more aggressively?
- Does the public have sufficient opportunity to provide input into BPA's forecasting assumptions?

Common Cause is urging Members of Congress to ferret out institutional or other obstructions which would impair BPA's ability to carry out the Power Council's plans.

We would appreciate your timely response to these concerns and inquiries.

EXHIBIT B

Testimony for Water and Power Subcommittee
of the Senate Committee on Energy and Natural Resources

Rose Magnuson
424 Woodworth Avenue
Missoula, Montana 59801
August 26, 1982

As a Common Cause Regional Task Force Member I would like to thank your committee for answering our call for congressional oversight of the procedures leading to the implementation of the Regional Power Act and for arranging this particular public hearing.

My suggestions today are made not as a representative of any group nor under the assumption that I am an expert in the transmission area. Instead they are made as an inquiring, involved and concerned private citizen.

While the scope of this hearing is primarily to consider one particular siting, the issues surrounding that siting lead me to request expanding the scope to a matter that may affect the building of future transmission lines as well as inter-ties with the Southwest and BPA's application of the "one utility" concept.

The main suggestion I would like to make is that this subcommittee consider amending the 1974 Federal Columbia River Transmission System Act to define when it is appropriate for a federal agency to build transmission lines for investor owned utilities or public utilities customers.

The BPA Administrator is necessarily given a great deal of discretion through this and various acts. However, after observing the fast changes in surplus and deficit power supply projections, and the changing uses of this line under question, during the time this particular siting has been processed, I believe that congressional definition is needed to guide the Administrator in determining:

1. If the energy to be transmitted will serve the needs of the Northwest or if it will be used outside the Region.

2. If the total effects of the siting of power lines are justified by the need for the energy.
3. If the rates imposed for wheeling energy for out of region use are equitable and reflect the financial, social and environmental effects of the lines.
4. If all priority resources, such as conservation, mandated by the Regional Power Act have been explored.
5. If and when an exchange customer should be granted the contractural rights of having BPA build power lines for them.

and in determining:

6. If the federal use of the power of eminent domain is justified by who will benefit from the building of specific lines; for instance, under what conditions should BPA build intertie capacity for customers to transport higher priced thermal generated power out of the Region while using cheaper BPA power to meet their regional system needs?

In consideration of these points and other points made today, I trust the Committee will agree that the BPA Administrator needs congressionally imposed boundaries within which he can exercise his discretion in dealing with these complicated issues and the many interest groups involved.

Senator BAUCUS. Thank you very much for coming today and making the points that you did. The hearing is adjourned.

[Whereupon the hearing adjourned at 5:30 p.m., subject to the call of the chair.]

APPENDIX

SUBMISSIONS OF BONNEVILLE POWER ADMINISTRATION

QUESTIONS OF SUBCOMMITTEE AND RESPONSES OF BONNEVILLE POWER ADMINISTRATION

1. Please supply a detailed legal analysis to support your position that BPA not only is authorized, but also is required to decline compliance with the Montana facility siting statute. Please focus the analysis on the issue whether BPA must refuse compliance with Montana law and indicate whether any analysis was prepared prior to, or after, the decision to avoid compliance with Montana law and supply copies.

   BPA cannot comply with the Montana Major Facility Siting Act (Siting Act) because Congress has not waived Federal Supremacy. The Federal Supremacy Doctrine, derived from Article VI, clause 2, of the United States Constitution, states that BPA is subject to State regulation only if, and to the extent, Congress consents to that regulation. McCulloch v. Maryland, 4 Wheat 316, 4 L.Ed. 579 (1819); Gibbons v. Ogden, 9 Wheat 1, 6 L.Ed. 23 (1824). In order to find a waiver of Federal Supremacy, there must be a specific congressional statement that makes State regulation "clear and unambiguous." Hancock v. Train, 426 U.S. 167, 179, 48 L.Ed.2d 555, 565 (1976).

   In Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585 (9th Cir. 1981), the Ninth Circuit found that while Congress waived Federal Supremacy in the right-of-way provisions of the Federal Land Management Policy Act, 43 U.S.C. 1760, it was only a waiver as to substantive standards. Compliance with State procedures, reasoned the court, would allow a State to veto a Federal project, and the court found no "clear and unambiguous" congressional consent as to such regulation.

   BPA relied upon the position taken by the Ninth Circuit Court of Appeals in the decision in Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585 (1981). BPA did not prepare an independent analysis on compliance with State law.

   BPA was and is required to decline compliance with State procedures because Congress has not waived Federal Supremacy. For BPA to act otherwise would require BPA to assume a responsibility that belongs only to Congress.

2. Please supply a detailed response to the attached newspaper article which alleges BPA violation of the Freedom of Information Act by its failure to provide a file index, failure to permit inspection of files, failure to respond in a timely and complete manner, and refusal to permit use of BPA's photocopier. Append any BPA regulations, policies or memoranda governing implementation of the Freedom of Information Act and any memoranda prepared on the incidents cited in the newspaper article.

   BPA's Public Information Officer serves as the agency's Freedom of Information Officer, but he has been on a detailed assignment outside of the agency for a considerable period of time. During his absence a BPA attorney has served as Acting Freedom of Information Officer and was presumably involved in the incidents cited in the newspaper article. Unfortunately, this individual has been on annual leave for the past several weeks and is not expected to return until approximately December 1. With his assistance, we will prepare a response to this question and forward it by December 10.

[Subsequent to the hearing, the subcommittee received the following information in relation to question 2:]

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

OFFICE OF THE ADMINISTRATOR

DEC 14 1982

In reply refer to: CE/BPA-O

Honorable Max Baucus
United States Senate
Washington, D.C. 20510

Dear Senator Baucus:

This is to supplement our letter of November 19, 1982, which responded to the series of questions contained in your letter of October 7, 1982, by providing information for the record of the field hearing held by the Senate Committee on the Judiciary in Helena, Montana, on August 31, 1982.

As explained in our letter of November 19, 1982, we were unable to respond to Question 2 of your October 7, 1982, letter pending the return of a staff attorney who was on extended annual leave. Following is a restatement of your question and our response, together with Appendices containing supplementary material.

2. Please supply a detailed response to the attached newspaper article which alleges BPA violation of the Freedom of Information Act by its failure to provide a file index, failure to permit inspection of files, failure to respond in a timely and complete manner, and refusal to permit use of BPA's photocopier. Append any BPA regulations, policies or memoranda governing implementation of the Freedom of Information Act and any memoranda prepared on the incidents cited in the newspaper article.

   As recollected by the BPA staff involved, Mr. Jim Robbins and another Montana newspaper reporter made an unscheduled appearance at the BPA Division of Transmission Engineering offices in November 1981 and demanded access to BPA records concerning the Colstrip Transmission Project. Mr. Charles Clark, BPA Director, Division of Transmission Engineering, appropriately contacted Mr. Gene Tollefson, BPA Public Information Officer (and Freedom of Information Officer), who met with the two reporters and inquired as to the specific nature of the requested materials. After explaining that BPA files on the Colstrip Transmission Project are dispersed throughout a number of BPA offices, Mr. Tollefson and Mr. Harvard Spigal, BPA Assistant General Counsel, explained the procedures for obtaining documents under the Freedom of Information Act (FOIA) and assisted the two reporters in narrowing down their request to more manageable terms. This resulted in the subsequent receipt of a written FOIA request which was assigned to Mr. William Kinsey, BPA Attorney-Adviser, who is responsible for handling FOIA requests. Mr. Kinsey talked with Mr. Robbins by telephone and reached agreement concerning the specific materials to be provided. (See Appendix S, an October 6, 1982, memorandum from Mr. Tollefson which generally describes the above circumstances.)

   As soon as the specific documents had been identified, BPA promptly began to respond to the request. Because Mr. Robbins' requested materials were quite extensive, and because BPA's files on this subject are located in a number of BPA offices, BPA utilized the 10-day extension of time provided under the FOIA in order to compile, collate, and copy the documents. On December 11, 1981, Mr. Clark sent the requested documents to Mr. Robbins, together with a covering letter. (See Appendix T.) Where no documents exist with respect to specific items included in the FOIA request, this fact was so noted in Mr. Clark's covering letter.

Through a clerical mistake, this first mailing contained five copies of a portion of the requested materials instead of one copy of the total compilation. As soon as Mr. Robbins brought this omission to Mr. Clark's attention, the omitted materials were provided.

Regarding the points made in Mr. Robbins' June 1982 article in the Montana Standard, the following information is pertinent. First, although BPA was not directly involved in the Colstrip Transmission Project until 1977, the materials provided to Mr. Robbins did include two BPA internal memoranda concerning tranmission planning being conducted by the Montana Power Company and cosponsoring utilities in 1972-73.

As noted in our response to the FOIA request, no written correspondence was conducted between BPA and the Federal Bureau of Investigation (FBI) relating to landowner contacts concerning the Colstrip Transmission Project. However, because of numerous threats of interference with BPA survey activities, BPA security representatives did make appropriate personal contacts with local law enforcement agencies and the Helena office of the FBI. Thereafter, when several miles of BPA survey stakes and monuments in the vicinity of Boulder, Montana, were vandalized, BPA so reported to the FBI, which evidently led to FBI inquiries of local landowners. To the best of our knowledge, this was handled in a low-key manner with no accusations or indepth investigation involved. It should be noted that all BPA/FBI contacts in this regard were of a verbal nature.

With respect to BPA correspondence concerning the Colstrip Transmission Project and the possible crossing of the Flathead Reservation, the FOIA response included copies of several letters from BPA to Senator Baucus.

Mr. Robbins' newspaper article implies that BPA was unwilling to cooperate with Missoula County and Northern Plains Resource Council representatives who sought access to BPA files in early 1982. It should first be understood that this matter involved litigation between these two entities and BPA, no "court order" was involved, and the information requested was a part of the legal discovery process, not a FOIA request. This matter was handled by the BPA Office of General Counsel in a cooperative, professional manner and the requesting officials were provided with all of the documents to which they were legally entitled.

With respect to the use of the BPA photocopier, the BPA attorneys did not "retaliate" by denying the use of BPA copy facilities. They simply exercised a standard BPA procedure which has been established for legal discovery proceedings often entailing the compilation and copying of large volumes of documents. In order not to tie up the BPA Copy Center for inordinate periods of time, our standard procedure is to ask that those involved in the discovery process utilize commercial copy services. This procedure is understood by and generally acceptable to all parties involved in the legal discovery process.

The last sentence in Question 2 asks that we append any BPA regulations, policies or memoranda governing implementation of the FOIA and any memoranda prepared on the incidents cited in the newspaper article. The latter materials are included in the Appendices to this letter and we have already provided a copy of DOE Order No. 1700.1, the Freedom of Information Program--10/8/81, as Appendix P to our letter of November 19, 1982.

We trust that the above is fully responsive to Question 2 of your letter dated October 7, 1982. Should you desire additional information, please let us know.

Sincerely,

Peter T. Johnson

Administrator

Enclosures

Appendix S

PORTLAND FEDERAL EXECUTIVE BOARD

1776 Federal Building
1220 S. W. Third Avenue
Portland, Oregon 97204
(503) 221-3010

John Vogel
Chairman

Gene Tollefson
Executive Director

October 6, 1982

MEMORANDUM

TO: Dan Schausten

FROM: Gene Tollefson

SUBJECT: Independent - Record Reporters

The incident involving the Independent-Record reporters began with a call from Chuck Clark in Engineering. Chuck indicated that two reporters were in the building demanding access to records involving the Montana Transmission Line. I told him that he should send the reporters to my office. I then contacted the legal office and Harvey Spigal who, in the absence of Freedom of Information lawyer Bill Kinsey, came to my office. When the two reporters arrived I explained to them that the files relating to the transmission line were located in a number of different offices throughout the building and that, in any event, we could not allow them simply to go through our files. Spigal then outlined for them the requirements for obtaining information under the Freedom of Information Act. He stressed the fact that it cuts down on the time and expense of a search if they are as specific as possible in requesting documents.

The parties left the office, apparently satisfied, and subsequently sent a Freedom of Information request to Bonneville. That request was somewhat vague. Bill Kinsey then negotiated a more specific list of requested information with them. The request went to Chuck Clark and his staff who took the lead in collecting the requested documents which in turn were given to the reporters.

Gene Tollefson

Gene Tollefson

Appendix T

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

12/11/81

In reply refer to: AI

Mr. Jim Robbins
Lee State Bureau
P.O. Box 4942
Helena, MT 59624

Dear Mr. Robbins:

Subject: Freedom of Information Act Request

Enclosed please find documents in response to your Freedom of Information Act request. Your particular request and the documents submitted are set forth in the following paragraphs:

1. Request: Any correspondence (memos, letters, reports, etc.,) between the Bonneville Power Administration and The Montana Power Company regarding any aspect of the Colstrip transmission lines for the period from September to December 1977.

   a. Letter to Mr. Donald P. Hodel, BPA Administrator, dated September 26, 1977, from Joe McElwain, The Montana Power Company.

   b. Letter to Mr. John Evans, The Montana Power Company, dated October 31, 1977, from Ronald H. Wilkerson, Colstrip EIS Manager.

   c. Letter to Mr. John Evans, Montana Power Company, dated November 1, 1977, from M. Klinger, Assistant Chief, Branch of System Engineering.

   d. Letter to Mr. Joseph A. McElwain, President, Montana Power Company, Butte, Montana, dated December 2, 1977, from Donald Paul Hodel, BPA Administrator.

   e. Letter to Mr. Ron Wilkerson, Manager, Kalispell District Office, BPA, dated December 16, 1977, from John T. Evans, Project Coordinator, The Montana Power Company.

   f. Letter to D.E. Olson, Transmission Design Engineer, The Montana Power Company, dated December 23, 1977, from Ronald H. Wilkerson, Kalispell District Manager.

   g. Letter to John T. Evans, Assistant Chief Engineer and Manager of Engineering Department, The Montana Power Company, dated September 27, 1977, from Ronald H. Wilkerson, Kalispell District Manager and Colstrip EIS Manager.

   h. Letter to Joseph A. McElwain, President and Chief Executive, The Montana Power Company, dated October 5, 1977, from Hector J. Durocher, Acting Administrator.

   i. Letter to Mr. Phil H. Beagles, Montana Power Company, dated November 25, 1977, from Dennis M. Porter, System Planning Engineer.

j. Letter to Mr. John Evans, Montana Power Company, dated December 16, 1977, from Marvin Klinger, Assistant Chief, Branch of System Engineering.

2. Request: Internal memos regarding plans to build the Colstrip transmission line in 1971, 1972, and 1973 by the BPA.

With regard to request 2, BPA did not develop any plans to build Colstrip transmission lines until after Montana Power Company requested BPA to do so in 1977 and BPA decided to seek congressional approval. Please see the September 26, 1977, letter from Montana Power Company to BPA and the December 2, 1977, letter from BPA to MPC in the documents in response to request 1. We therefore do not have any memorandums regarding plans to build the Colstrip transmission line. In 1971-1973, however, MPC and other utilities did want to learn how BPA could strengthen its system in the Pacific Northwest to permit reliable integration of power generated at Colstrip and transmitted westward by lines built by these utilities. As information about discussions that occurred, I enclose two factual memorandums: a memorandum from Mr. Wilkerson to all employees in western Montana dated June 12, 1973, and the attachment to the August 14, 1972, memorandum from Mr. Wilkerson to addressees.

3. Request: Any correspondence between then-Congressman Max Baucus and the BPA regarding the construction of the Colstrip powerlines across the Flathead Indian Reservation and later, from Hot Springs to Townsend.

We enclose the following documents in response:

a. Letter to the Honorable Max Baucus, Missoula, Montana, dated August 30, 1976, from Ray Foleen, Acting BPA Administrator.

b. Letter to Mr. Gordon Brandenburger, BPA, dated July 26, 1976, from Mr. Max Baucus.

c. Letter to Senator Max Baucus, dated January 18, 1980, from Ray Foleen.

d. Letter to the Honorable Max Baucus, dated January 31, 1980, from Mr. Gordon Brandenburger.

e. Letter to the Honorable Max Baucus, dated October 21, 1981, from Peter T. Johnson, Administrator.

4. Request: Internal memos on the decision to build the line from Hot Springs to Townsend.

I have collected the following documents:

a. September 13, 1979, letter from Hector J. Durocher to Edwin Zaidlicz of the Bureau of Land Management.

b. September 13, 1979, letter from Hector J. Durocher to Tom Coston.

c. Forest Service and BLM Record of Decision (September 21, 1979).

d. Townsend to Garrison Record of Decision (August 18, 1981).

We have not located any internal memorandums on the decision to build. We do have memorandums preliminary to any decision to construct transmission lines, but should one submit a request for such memorandums, we would respectfully deny the requests pursuant to the fifth exemption in the Freedom of Information Act for intra- and interagency memorandums which would not be available by law to a party other than an agency in litigation with an agency.

5. Request: Any correspondence with Deer Lodge National Forest regarding

construction or planning of Colstrip transmission lines for the period from 1970 to 1974.

We enclose the following documents:

a. Memorandum to Ron Wilkerson, BPA, Kalispell, Montana, dated July 5, 1972, from C.W. Wetterstrom, Chief, Water Storage Impacts Branch, Division of Soil, Air, and Water Management, USDA Forest Service, Missoula, Montana.

b. Memorandum to N.A. Gilchrist, Spokane Area Manager, dated November 14, 1972, from Ronald H. Wilkerson, Kalispell District Manager.

6. Request: Any material (reports, letters, memos) regarding BPA's decision to build the Hot Springs to Townsend portion (of the line) either to or from Montana Power, interagency correspondence, etc., for 1973 and 1974.

We have no such correspondence.

7. Request: Any correspondence between the FBI and the BPA for the years 1979, 1980, and 1981, regarding the transmission lines in any way.

We have no such correspondence.

If, in addition to the information that you have requested, you are also interested in BPA's compliance with the National Environmental Policy Act, you may want to review the environmental impact statements and other documents on file with the Federal District Court in Billings, Montana, for the case of County of Missoula et al. v. Peter Johnson et al., Case No. 81-35-BU.

We have chosen not to impose a charge for the location and copying of the enclosed documents. We hope they are useful to you.

Sincerely,

Charles F. Clark, Director
Division of Transmission Engineering

Enclosures

Editor's Note.--The enclosures accompanying this letter are on file with the subcommittee. Appendix U and its enclosures are also on file with the subcommittee.

[Question 3 begins on the following page.]

3. **Please provide a detailed discussion of all BPA litigation immunity and liability immunity and/or limitations on litigation and liability with appropriate statutory and case citations. Please include an overview of the circumstances under which BPA would be liable or could be sued for damages caused by or related to BPA activities or projects.**

Governmental or sovereign immunity from litigation is a concept that was brought from England as a part of the common law. The sovereign cannot be sued without consent. This concept appears in the Eleventh Amendment to the U.S. Constitution, which provides:

> "The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against any one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State."

This amendment has been construed to hold the United States as immune from suit against it unless consent is given. Cohen v. Virginia, 6 Wheat 264, 411-412, 5 L.Ed. 257, 293 (1821); United States v. Lee, 106 U.S. 196, 27 L.Ed. 171, 177 (1882).

By several statutory enactments Congress has waived sovereign immunity. For instance, the Court of Claims has jurisdiction over cases against the United States involving contracts entered into by the executive department and for damages or other claims arising from personnel cases, patent infringements, and tax matters (28 U.S.C. 1491). Also, under 28 U.S.C. 1346 district courts have broad jurisdiction over claims against the Government, including tort claims under 28 U.S.C. 1346(b) *et seq*.

One area wherein specific jurisdiction over BPA's activities has been conferred upon a court is in connection with the Pacific Northwest Electric Power Planning and Conservation Act, P.L. 96-501, December 5, 1980, (Regional Act), which provides in section 9(e)(5) as follows:

> "Suits to challenge the constitutionality of this Act, or any action thereunder, final actions and decisions taken pursuant to this Act by the Administrator or the Council, or the implementation of such final actions, whether brought pursuant to this Act, the Bonneville Project Act, the Act of August 31, 1964 (16 U.S.C. 837-837h), or the Federal Columbia River Transmission System Act (16 U.S.C. 838 and following), shall be filed in the United States court of appeals for the region. Such suits shall be filed within ninety days of the time such action or decision is deemed final, or, if notice of the action is required by this Act to be published in the Federal Register, within ninety days from such notice, or be barred. In the case of a challenge of the plan or programs or amendments thereto, such suit shall be filed within sixty days after publication of a notice of such final action in the Federal Register. Such court shall have jurisdiction to hear and determine any suit brought as provided in this section. The plan and program, as finally adopted or portions thereof, or amendments thereto, shall not thereafter be reviewable as a part of any other action under this Act or any other law. Suits challenging any other actions under this Act shall be filed in the appropriate court."

BPA will continue to be liable under general acts of Congress which waived sovereign immunity to suit as well as under the Regional Act.

Congress has expressly consented to be sued for property damage and personal injury under the Federal Tort Claims Act, 28 U.S.C. 1346(b) et seq. The consent to be sued is limited to negligent acts or omissions of Government employees. Congress has not consented to liability for punitive damages. (Title 28, U.S.C., § 2674.) Further, Title 28, U.S.C., § 2680 lists several specific areas in which Congress retained governmental immunity. Specifically, 28 U.S.C. 2680(a) provides:

> "The provisions of [the Federal Tort Claims Act] shall not apply to--
>
> "(a) Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused."

The Federal Tort Claims Act provides statutes of limitations for tort claims against the Government. The claim must be presented to the responsible agency within two years after the claim accrues. 28 U.S.C. 2401. The agency must act within 6 months to accept or deny the claim; a failure of the agency to act within that period is taken as a denial, allowing claimant to sue. 28 U.S.C. 2675(a). Suit must be commenced with 6 months of the agency's denial of the claim. 28 U.S.C. 2401(b).

The liability of the Government is spelled out in the provisions of the Federal Tort Claims Act 28 U.S.C. 1346(b), 2671-2680. Section 1346(b) provides that the United States shall be liable for

> "[P]ersonal injury . . . caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of his office or employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred."

In general, the Federal Tort Claims Act makes the Federal Government liable to the same extent as a private citizen in terms of ordinary negligence tort liability.

Two factors, causation and negligence, must exist before BPA is liable. The Government, like a private citizen, is liable only when its negligence has caused an injury.

For example, in order to recover from the Government for anything attributed to a transmission line, a person must suffer a personal injury or illness that is actually caused by such transmission line or its construction.

The other factor which is necessary to Government liability is negligence. The Government is only liable under the Federal Tort Claims Act when the Government's conduct which causes the health problem is found to be negligent. Without negligence BPA is not liable. Negligence is defined for Montana situations by Montana law. Whether some Government conduct is, or is not, negligent must be determined in each situation by the particular facts and is adjudged on the basis of whether the Government failed to act as a reasonably prudent person would have acted under the same or similar circumstances.

4. Please indicate how BPA's decision to delay the acquisition of alternative resources is consistent with the explicit requirements of the Public Utility Regulatory Policies Act, in particular section 210,

which requires utilities and power marketing authorities to acquire alternative energy resources from offering parties.

Public Utility Regulatory Policies Act (PURPA) applies to BPA. As indicated below, PURPA does not grant BPA independent purchase authority. With the enactment of the Regional Act, BPA obtained express purchase authority under specified terms and conditions of that Act. The Regional Act clearly gives BPA the authority to purchase "cost effective" resources. Because BPA's authority to purchase is established by the Regional Act, each of the Act's standards must be met to make any purchase. This includes any purchase of a qualifying facility under section 210 of PURPA. The following answers the questions posed under paragraph 4:

Please respond in detail to the following:

A. Do you believe that BPA is a "Federal power marketing agency" as that term is defined in Sec. 3(4) of PURPA and the relevant legislative history?

BPA is a Federal power marketing agency as defined in section 3(4) of PURPA.

B. Do you believe that BPA is covered by Sec. 210 of PURPA?

BPA is covered by section 210 of PURPA as a "nonregulated electric utility".

C. In BPA's Preliminary Statement entitled, "PURPA Section 210 and Resource Acquisitions Under the Regional Power Act," you indicate your belief that "PURPA grants no new purchase authority to Bonneville independent of the short-term purchase authority which existed under the (Federal Columbia River) Transmission System Act at the time PURPA was enacted." Yet, Congress expressly included federal power marketing agencies under the definition of "electric utility" under Sec. 210 of PURPA, and as a sign that there was no inadvertence by Congress, it expressly exempted them from the definition of electric utilities under the Federal Power Act, as amended by PURPA. Given this directive to participate in the Sec. 210 program, why do you contend that Congress conferred no new purchase authority upon BPA and PURPA?

BPA's conclusion that PURPA confers no independent authority is contained in a memorandum from the General Counsel's Office to the Assistant Power Manager dated June 12, 1980. A copy of the memorandum is provided (Attachment A). As the memorandum indicates, PURPA confers no express purchase authority upon any utility, but rather conditions the exercise of the utility's existing purchase authority. Prior to the Regional Act, BPA's purchase authority was limited to that purchase authority implied from the Bonneville Project Act and contained in the Federal Columbia River Transmission System Act (Transmission System Act). The Transmission System Act provided only for short-term purchases. The Bonneville Project Act's long-term implied purchase authority has been utilized, as in the case of the net billing agreement, only with express congressional approval. The memorandum concludes that there is no provision in PURPA which effects an express or implied repeal of the conditions for BPA purchases under Section 11(b)(6) of the Transmission System Act, or under the Bonneville Project Act.

D. Why and how do you believe that Bonneville Project Act and the Transmission System Act operate to limit BPA's authority under PURPA? Why is PURPA not an express grant of independent purchase authority to BPA?

The Bonneville Project Act and the Transmission System Act do not operate to limit BPA's purchase authority under PURPA because no express purchase authority is granted by PURPA. Rather than a grant of purchase authority, the clear language of PURPA dictates what price must be paid for power that is purchased from a qualifying facility. The legislative history of PURPA section 210 makes clear that the rate paid to a qualifying facility may not exceed "the incremental cost of alternate electric energy." H.R. Rep., 1750, 95th Cong., 2d Sess. 98 (1978). Thus, unless the utility is purchasing an alternative resource, PURPA gives no authority to purchase a resource. On the other hand, were BPA making short-term purchases under its Transmission System Act or Bonneville Project Act authority, it is clear that the PURPA cost guidelines would apply.

E. If you believe, as expressed at earlier hearings, that BPA is covered by Sec. 210 of PURPA, why and how does the Regional Power Act, as the most recent grant of jurisdictional authority to BPA repeal Sec. 210 by implication or limit the class of customers to whom BPA may sell power pursuant to PURPA?

The provisions of PURPA 210 applicable to nonregulated utilities apply to BPA. BPA is granted authority to purchase resources, however, under the limitations and standards expressed in the Regional Act, including the standard of "cost effectiveness" for acquisition of resource. The standard of cost effectiveness must be applied by BPA. There has been no implied repeal of PURPA 210 has been effected by the Regional Act. Although PURPA 210 sets the cost standard of "avoided cost," BPA considers this principle to be compatible with the Regional Act's cost effectiveness standard because FERC regulations provide flexibility in defining "avoided cost" for resources. Those regulations were held invalid and remanded to the FERC by the United States Court of Appeals for the District of Columbia. FERC has appealed that ruling to the United States Supreme Court which has accepted certiorari. BPA has attached a memorandum addressing implied repeal and coordination of PURPA with the Regional Act. BPA is limited by the provisions of both the Bonneville Project Act, 16 U.S.C. section 832 et seq., and the Regional Act regarding to whom BPA may sell power on a preference and priority basis.

F. As recently as last term, the U.S. Supreme Court, in Kremer v. Chemical Construction Corp., 50 U.S.L.W. 4489 (May 17, 1982), reiterated the principle that "It is, of course, a cardinal principle of statutory construction that repeals by implication are not favored . . . ." Why and how would you suggest that sections 4(e) and 6 of the Regional Power Act present an irreconcilable conflict with the purchase program under Sec. 210 of PURPA?

BPA does not suggest that sections 4(e) and 6 of the Regional Act represent an irreconcilable conflict of the purchase program under section 210 of PURPA. However, until the FERC repromulgates regulations interpreting avoided costs, or wins its appeal in the Supreme Court, it is impossible to determine how to reconcile PURPA's "avoided cost" standard with BPA's "cost effective" standard. Because BPA's cost effectiveness procedures are still being developed it is difficult to determine when a purchase from a qualifying facility will be cost effective under the Regional Act. BPA anticipates publication of proposed "cost effectiveness" procedures in the Federal Register in the near future, and will seek public comment on the procedures before their final adoption.

G. Do you believe it would be unreasonable to interpret the Regional Planning Council's long-term planning responsibilities and ranking of priorities for resource acquisition under sec. 4(e) to be complementary to the immediate purchase of cogenerated and small power production from qualifying facilities under PURPA?

There is no basis for determining, until the Regional Planning Council establishes its plan, whether immediate purchase of cogeneration and small power production from qualifying facilities under PURPA will be consistent or inconsistent with the Regional Planning Council's plan.

PURPA 210 does not require purchase of power from a qualifying facility when the utility has power surplus to its customers' demands.

H. Could resource acquisition under Sec. 6 of the Regional Power Act operate simultaneously with power acquisition under Sec. 210 of PURPA? If not, why not?

Acquisitions made by BPA pursuant to its resource acquisition authority under section 6 of the Regional Act would not be "simultaneous" with acquisitions under section 210 of PURPA, since section 210 of PURPA provides no independent purchase authority. On the other hand, such a purchase might very well be at BPA's avoided cost, provided that the resource also meet the cost effectiveness and other standards of section 6 of the Regional Act.

I. Could BPA acquire power from qualifying facilities under PURPA, and still consider the acquisition of other "generating resources utilizing waste heat or generating resources of high fuel conversion efficiency" pursuant to sections 4(e) and 6 of the Regional Power Act? If not, why not?

As previously stated, PURPA does not grant BPA any authority to purchase resources. The authority to purchase is only found under the provisions of the acts discussed above. A purchase of a resource, whether a qualifying facility or a resource generating waste heat or of high full conversion efficiency, however, could be made under the Regional Act. It is therefore conceivable that resources may be acquired by BPA which are qualifying resources under PURPA and, simultaneously, resources could be acquired which are not qualifying resources under PURPA but meet the relevant statutory standards (e.g., cost effectiveness).

J. Section 9(j)(1) of the Regional Power Act directs the Regional Planning Council and the Administrator to prepare a report making recommendations regarding various retail rate designs. The statute expressly states that "Studies undertaken pursuant to this subsection shall not affect the responsibilities of any customer or the Administrator which may exist under the Public Utility Regulatory Policies Act of 1978." Do you believe that it was Congress' intent to uphold PURPA expressly with respect to retail rate studies, yet to repeal Sec. 210 silently, inadvertently, or by implication?

BPA has concluded that section 210 of PURPA was not repealed by enactment of the Regional Act; rather, any purchases which BPA makes must be consistent with the Regional Act. To the extent that a resource can both be "cost effective" and purchased at PURPA's avoided cost, BPA has authority, and a mandate to do so provided the resource meets other Regional Act acquisition standards. However, until BPA has determined its cost effectiveness standards, and FERC repromulgates regulations defining avoided cost or wins its appeal in the Supreme Court, it is difficult to determine the degree of consistency between cost effectiveness and avoided cost.

K. Do you believe that it was Congress' intent that the incremental, or avoided cost of cogenerated or small power production under PURPA is zero if the utility is energy sufficient or is not authorized to purchase energy? If so, why?

BPA believes that incremental or avoided cost of a qualifying facility under PURPA is zero if the utility would not be purchasing a "alternate electric energy" source. H.R. 1750 at 98. As indicated in the House Report, "incremental cost of alternative electric energy" requires a comparison resource. If there is no resource which would be purchased but for the purchase from a cogenerator or small power producer, then the incremental cost is zero. On the other hand, as indicated, the utility may look to its long run incremental cost in determining avoided cost. BPA is currently attempting to reconcile its long run incremental cost with what now appears to be a reasonable long-term surplus of energy. As PURPA's legislative history makes clear, PURPA was enacted to make the consumer better off from an economic perspective as a result of a utilities purchase of resources, and not worse off. Therefore, a qualifying facility would not be purchased by a utility which had no need for additional resource. Until BPA determines the long-term need and availability of resources, it is impossible to determine whether acquisitions made under the Regional Act would be cost effective.

L. Do you believe that such an interpretation is consistent with Congress' definition of the term "incremental cost of alternative energy" as set forth in H.R. Rept. 95-1750?

This question was answered in the previous response.

M. Do you believe that the notion that the incremental cost of alternative power for a utility with excess capacity is zero is consistent with the U.S. Court of Appeals' interpretation of avoided cost in American Elec-Power Service Corporation v. FERC, ___ F.2d ___ (D.C. Cir. 1982)? If so, why?

A utility with excess capacity in the long run, would presumably have a zero avoided cost. The case American Electric Power Service Corporation, v. FERC, et al., 675 F.2d 1226, (D.C. Cir. 1982) is neither consistent nor inconsistent with this notion. The case merely cites to the legislative history previously cited in this response to the questions posed and accepts at face value the conference committee's discussion of the notion of "incremental cost of alternate electric energy".

5. Please provide a breakdown of BPA's costs in the lawsuit with the State of Montana over compliance with the State siting statute. Please include a set of BPA's complaint, answers, briefs, and a transcript of the federal district court hearing in which BPA argued that Montana's siting law and decision contained no substantive standards. Please provide the same estimate and documentation for the Columbia Basin litigation.

Pursuant to this question, the following information is enclosed. First, a copy of the complaints, answers, and briefs filed in the case State of Montana v. Johnson, No. 81-26-BU (D. Mont. filed March 26, 1981) (Appendix B). The following documents are provided:

DATE	TITLE
06-05-81	Defendants' Answer
11-19-81	Defendants' Reply Brief
06-07-82	Defendants' Memorandum in Support of Motion for Determination of Compliance
06-23-82	Defendants' Supplemental Memorandum in Support of Motion for Determination of Compliance
06-23-82	Transcript of Hearing on Motion for Determination of Compliance
07-08-82	Defendants' Response to Plaintiffs' Determination of Noncompliance

A transcript of the June 23, 1982, hearing is included. Second, complaints, answers, and briefs filed in Columbia Basin Land Protection Association v. Schlesinger, 643 F.2d 585 (9th Cir. 1981), at both the district court and appellate court levels (Appendix C). The following documents are provided:

DATE	TITLE
03-15-76	Defendants' Supplemental Answer
07-29-76	Defendants' Trial Memorandum
08-09-76	Defendants' Answer to Second and Third Supplemental Complaints
10-15-76	Defendants' Memorandum on Scope of Judicial Review
10-15-76	Defendants' Answer to Complaint in Intervention
03-77	Defendants' Memorandum on Plaintiffs' Claim Under FLPMA
11-25-77	Defendants' Memorandum in Support of Motion to Dissolve Injunction
09-78	Defendant-Appellants' Brief in the Ninth Circuit

An estimate of BPA's litigation costs incurred in defending State of Montana v. Johnson, is provided below.

EMPLOYEES

Position	Cost/Hour	Estimated Hours Spent	Cost	Total
Attorney 1	31.50	200	6,300	
Attorney 2	24.90	400	9,960	
Attorney 3	21.11	40	845	
			17,105	17,105
Law Clerk	10.00	600	6,000	6,000
Secretary 1	13.01	80	1,040	
Secretary 2	10.80	300	3,240	
			4,280	4,280
Witness	29.34	30	880	880
Justice Dept.	31.50	50	1,575	1,575
Reproduction	(No. Pages)	500	.032	16
				29,856

TRAVEL

Employee	Date	Trip	Per Diem	BPA Plane
Attorney 1	6-82	PRSN-Billings-PRSN	80.00	513
Attorney 2	6-82	PRSN-Butte-PRSN	26.00	256
Law Clerk	6-82	PRSN-Billings-PRSN	81.00	513
Witness	6-82	PRSN-Billings-PRSN	80.00	513
			267.00	1,795

TOTAL

Employee Cost	29,856
Per Diem	267
BPA Plane	1,795
	31,918

A detailed analysis of the costs incurred in defending Columbia Basin is not possible at this time as the case was filed over 6 years ago. The cost was estimated in 1980 as part of BPA's estimate of NEPA litigation costs, at $84,000. BPA staff has worked on the case since 1980 for an estimated $3,000 of additional expense.

6. Please supply a list of those "substantive standards" that BPA would find acceptable and would abide by if used by states as the basis for transmission line siting decisions. Contrast these with a list of procedural standards BPA would not be willing to accept.

   At this time BPA cannot identify substantive standards for the State of Montana to adopt that are not already a part of BPA's design and location standards. BPA's transmission lines are constructed in conformity with the standards of the National Electric Safety Code (Safety Code), which is used throughout the industry and which is considered the state-of-the-art standards for providing the highest degree of public safety.

   BPA works closely with the applicable State in developing final construction and design standards for a proposed project. For example, the State of Oregon recently decided to develop its own design standard for kV per meters at the edge of a right-of-way. The State of Oregon adopted the standard based upon consultation and input from all interested groups, including BPA and utilities within the State. The adopted standard is consistent with the Safety Code and BPA complies with it.

   In State of Montana v. Johnson, No. 82-87 (D. Mont. filed March 26, 1981), Judge Battin found that substantive standards pertain to the physical aspects of the project under construction --for example, the height of towers, size of towers and conductors, etc., whereas procedural standards pertain to the criteria applied in making the ultimate decision --for example, whether where and how to build. As stated in the response to Question 1, without specific Congressional authorization, BPA is constitutionally prohibited from redelegating to States or local governments the responsibility for those decisions delegated to the Bonneville Power Administrator by applicable Federal enabling acts.

7. Please supply additional material supporting your contention that BPA fully complied with the Columbia Basin schedule order and supplied all materials sought by the State of Washington. Indicate the dates on which materials were supplied by BPA. Please indicate further your understanding of the reason for delay in turning the materials over the State of Washington.

   It was not until about February 12, 1982, as a result of advice from the U.S. Attorney that BPA was told just what materials would need to be furnished to the U. S. Attorney's office in Spokane, Washington, to respond to the State of Washington request. The uncertainty is attributed to the fact that all of the material that was requested by the State had already been furnished to the State as part of BPA's NEPA review process. As a result of the discussions, BPA agreed to resubmit all the environmental documents pertaining to the Lower Monumental-Ashe 500-kV Transmission Line Project. These documents were submitted to the U.S. Attorney by letter, February 26, 1982 (Attachment D). The time to submit such information had been extended by stipulation between the State of Washington and the U.S. Attorney's office, to March 9, 1982.

   BPA is not in a position to provide an answer as to the reasons for the timing of the final response of the U. S. Attorney's office. This is a question that would be more appropriate for that office to answer. BPA made several followup requests by telephone and by letter of July 27, 1982, and letter of August 12, 1982, copies of which are attached (Attachment E). The U.S. Attorney filed the material with the court on August 30, 1982.

8. Please supply estimates of the cost of BPA's initial and revised impact aid programs. Please calculate a total cost and a cost per ratepayer for

each. In addition, please supply comparable figures for a payment in lieu of taxes program.

BPA did not estimate the cost of the initial impact-aid program because the initial formula provided for payment for actual cost of services provided to BPA for "major transmission facilities" by local governments and historic data on such costs were not sufficient to estimate regionwide costs either on the basis of type of service or governmental jurisdiction. We did expect, however, that this formula would not have a substantial impact on BPA rates.

In response to local government and others' review of the initial impact-aid rule/formula, BPA is revising the formula to provide for payment on the basis of the amount and costs of BPA "major transmission facilities" in the local government jurisdictions. When this payment factor is determined BPA will be able to provide total estimated cost and per-capita costs for the revised impact-aid formula.

The legislative history of the Regional Act clearly indicates that impact-aid payments are not to be in-lieu-of-taxes payments. To comply with your question regarding in-lieu-of taxes, however, we have made the following estimate based upon information provided by the Montana Power Company.

Using the Townsend to Hot Springs route as a base, our calculations indicate that the total tax revenues lost to Montana counties if BPA constructs the line would be abnout $4,500,000 annually. Exact calculations, however, cannot be made until construction is completed. This estimate can only be preliminary and approximate since the expertise to make such calculations resides with the State and local governments involved.

9. Please provide a bibliography of the most important studies BPA relies upon concerning the health and safety effects of high-voltage transmission lines. Is it BPA's general conclusion that such lines are completely safe, relatively safe, or otherwise? Is BPA aware of any incidents where health or safety effects of such lines have been adverse? Please specify.

Enclosed is the latest, August 27, 1982, review of Electrical and Biological Effects of Transmission Lines giving a summary and bibliography of the studies BPA has reviewed. The overall results of this research and the operating experience continues to indicate there is little reason for concern about potential health and safety effects of high-voltage transmission lines. The studies provide further evidence that people can safely work and live near these powerlines.

10. Please indicate why BPA declined to grant Representative Pat Williams' request for additional time to comment on the Garrison-West line draft EIS. If the decision was based in whole or in part on the prospect that such an extension would delay the transmission line, please indicate which aspects of the project might have been delayed.

Representative Pat Williams requested extension of the comment period on the Garrison-Spokane Draft Environmental Statement (EIS) on May 14, 1982, to allow more interaction time with the Granite County Alliance and the State of Montana. Jerry Frick, BPA Project Manager, met with Pat Duffy of Representative Williams' staff and leaders of the Granite County Alliance to work out arrangements for their continued participation in the ongoing studies (see enclosed May 21, 1982, letter). After these arrangements were made and an agreement for state participation was completed, the decision was made to continue with the original schedule and Representative Williams was notified by the enclosed May 26, 1982, letter.

11. A July 16, 1982, letter from Mr. Steven G. Hickok, Assistant Administrator for Conservation, suggests that BPA's conservation efforts

will be pursued in a "more deliberate" fashion. In becoming more deliberate, what is BPA not doing that it would have done under the "crash" program? What is the difference in proposed outlays? How much additional energy saving is likely not to be realized because of this changed policy?

Under BPA's pre-April planning assumptions (prior to the new load forecast), the agency was operating with a theoretical 68-mills/kWh ceiling on incentives that could be offered under our conservation programs. That number represented a composite price BPA expected to have to pay for (1) new long-term generating resources, and (2) large short-term power purchases thought to be needed to deal with the deficits forecasted for the mid-1980's. In practical fact, however, most of the region's conservation potential is achievable at costs much less than 68-mills/kWh.

The first five BPA programs, designed and implemented under assumptions of near-term deficits, were those activities which BPA felt it could implement at the earliest possible moment. They were activities which some utilities in the region had begun several years earlier, and which were therefore relatively well-understood. BPA was more confident, then, that it could make a greater impact at an earlier time with these programs than it could with other possible activities. BPA planned, however, to turn as quickly as possible toward the development of the commercial and industrial conservation potential of the region, where much greater savings are possible over the long run than in the residential sector.

The first five BPA programs involve incentives that cover nearly the full cost of all measures eligible under the programs, yet these programs collectively cost less than 20 mills/kWh, a far cry from the 68-mill ceiling. It appeared, given the tremendous number of conservation opportunities with costs between 20 and 68 mills/kWh, that it would be a number of years before BPA would be getting to 68-mill programs.
When BPA's planning assumptions were changed in April, upon completion of its first regionwide econometric load forecast, BPA conducted an analysis of the need for new resources over the planning period (the 20-year period of the load forecast) and of that sequence of acquisitions (or billing credits) which would represent the least costly response to that need. Much conservation is at the front end of that sequence, as one would expect, because of the relatively low cost of many conservation resources.

As BPA projected that new resources would not be needed until 1988, the question became one of how much conservation activity BPA should stimulate in the region in 1983 (and 1984 and 1985, etc.) in order to accomplish the contribution conservation is to make to the least cost mix of resources in 1988 (and 1989, etc.). The 35-mill planning ceiling for new conservation programs that would start up in 1983 or 1984 is the result of this analysis. We estimate that more than 80 percent of all the conservation that is programmatically developable in the region at costs up to 68 mills/kWh is available at less than 35 mills/kWh, which indicates that a rapidly accelerating conservation effort is still necessary and desirable.

However, in that such an effort is no longer focused on a short-term need, but on a long-term one, BPA will take a somewhat different development tack than anticipated before April. For example, BPA is less interested in starting programs in 1983-84 that involve conservation measures with short economic lives. Such measures would produce the bulk of their savings in the surplus period, when they are not needed. An exception, however, might be a program involving measures so cheap that sales of the additional surplus to markets outside the Northwest would recover revenues sufficient to cover the measure costs.
BPA is also reassessing near-term (1983-84) interest in programs which can reach their entire saving capacity in a short period of time. Such programs should be started shortly in advance of 1988. By contrast, the

retrofit weatherization of the electrically heated homes in the region will take a good number of years to accomplish, and is an example of the type of program BPA should be pursuing today.

Finally, BPA intends not to launch new, large regionwide programs before it has done the kind of testing and evaluation through pilots and demonstrations that will allow it to proceed on a regionwide scale with some assurance of the efficiency and effectiveness of the selected approach. This is the "crash" vs. "deliberate" reference of your question. Our deliberate approach does not mean a lazy or slow approach. BPA knows it must move through such testing toward regionwide implementations as fast as possible, in order to reach the many conservation possibilities that are in the 35-mill range. The 35-mill figure, incidentally, is a much misunderstood concept in BPA's draft Near-Term Resource Policy. It is a present-valued, levelized cost over a 20-year life of a theoretical resource which would come "on line" in 1983. Resources coming on line later are worth more to BPA (to the region's ratepayers); resources with longer lives are worth more; and BPA is willing to pay more for them. Actual nominal costs of resources in the early years of their operation may be very high--in excess of 100 mills/kWh--and still have a levelized life-cycle cost of 35-mills/kWh in 1982 dollars.

The change in planning assumptions actually resulted in no changes to BPA's proposed conservation budgets. Its FY 1983 budget was reduced from $372 million to $285 million to more realistically reflect the ability of the region's program delivery infrastructure (in utilities, State and local governments, and other organizations) to carry the existing BPA programs as well as take up new ones planned for FY 1983 start-up. It also reflects a critical limitation of BPA staff available to plan, design and manage the conservation effort.

In addition to BPA-designed programs for regionwide application, conservation resource acquisitions in the future will include programs or site-specific projects designed by others. They will be accommodated either by direct acquisition or through a billing credit mechanism. This decentralized approach, while it relieves some central-staff design responsibilities, makes inordinate demands on this staff in evaluation and oversight. In dealing with conservation as a resource, and in acquiring it in competition with generating resources, BPA must be reasonably assured that it is getting the energy savings for which it is spending the ratepayer's money through the many and diverse activities of program deliverers. A simple grant program for uniform actions would be easier to administer, but that is not what the Regional Act contemplated.

The amount by which programmatically-acquired conservation is now expected to reduce regional loads by 1990 is approximately 1,000 average megawatts. This is in addition to what BPA believes would be price-induced, which is already netted out of the load forecasting models. This amount is not significantly changed from what BPA was projecting prior to April, corroborating the point that the 35-mill ceiling is no real constraint.

12. Please provide a detailed timetable for each step of BPA's budget development process. Use the FY 1984 budget as an example. Indicate the dates by which BPA develops a draft for submission and review by the Department of Energy and the Office of Management and Budget. Indicate the dates of additional steps and types of documents and background material prepared.

Please indicate further whether the draft budget, or portions of it, is or has been circulated for review by utilities, direct service customers, coops, consumers, farm or conservation groups or other entities and organizations. Is it now, or has it been, the practice of BPA to obtain assistance from any of the above in the preparation of BPA's budget? If so, who has been involved and under what circumstances?

The timetable for BPA's FY 1984 budget development process, which is typical for such processes, is as follows:

Approximate Date	Event
March 1982	BPA prepares preliminary program estimates, draft project authorizations.
June 1982	BPA submits budget data to DOE for DOE's Internal Review Budget.
August 1982	BPA submits its budget to DOE for DOE's OMB budget.
September 1982	DOE submits its budget, including BPA's material, to OMB.
October 1982	OMB conducts hearings on BPA's budget.
January 1983	DOE submits its budget, including BPA's material, to Congress.
March 1983	Congress holds hearings on the power marketing administration budgets.
July 1983	BPA prepares start-of-year program estimates, final project authorizations.

Closely related to the budget development process is the rate development process. When new rates are required, it is typically the case that they cover a 12-month period beginning at the start of a fiscal year and that the rate development process begins after BPA has submitted its budget to Congress. The following timetable covers the rates proposed to take effect at the start of FY 1984:

Approximate Date	Event
January 1983	BPA issues its initial rate proposal.
March-June 1983	BPA holds public hearings on its proposed rates.
August 1983	BPA submits its final rate proposal to the FERC for FERC's approval.

Because the October 1983 rates will cover a 21-month period rather than a 12-month period to accommodate requirements of the Pacific Northwest Electric Power Planning and Conservation Act, the budget development process for FY 1985 is atypical in one respect. The process would normally begin next spring, but because we must include program costs for the first 9 months of FY 1985 in the Initial Rate Proposal in January, we are now gathering preliminary estimates of those costs.

We recognize that our customers have an interest in the budget we ultimately propose. As part of our ongoing program development, we maintain extensive contact with them through customer meetings and less formal occasions. This is a major factor in ensuring that our budget takes into account their needs. In other words, the focus of our coordination is development of program proposals which form the foundation of our budget document.

Once the program proposals become part of the formal budget process, BPA follows the standard procedures of DOE, OMB, and Congress. This procedure requires that budget materials prepared as part of an agency's official OMB budget submission be kept confidential until the President submits his budget to Congress. BPA's budget receives public review when it is submitted to the Congress. It is made available as requested to utilities, direct service customers, co-ops, consumers, farm and conservation groups, and other interested parties shortly thereafter.

The programs and program costs receive additional public scrutiny when new rates are proposed. Prior to rate hearings, BPA holds public information meetings with question/answer sessions. During the rate hearings themselves, our proposed expenditures are thoroughly explored in testimony and cross-examination of BPA witnesses and representatives of utilities, direct service customers, co-ops, consumers, farm or conservation groups, or other entities. The final rate proposal which we present to FERC reflects adjustments made as a result of the hearings.

13. Please supply a copy of any guidelines or memoranda which govern the behavior of surveyors and others who make contact with landowners concerning possible routings of proposed transmission lines and associated facilities.

We do not have published guidelines that govern specific behavior of employees that meet with landowners. The persons that do meet with the public are skilled in interpersonal relations. These important skills are updated through continued training that is provided the individual. A resume of the Division of Land Resources follows.

As a public agency created to service a specific geographic area of these United States, BPA is very much aware of its responsibilities to gather and give information regarding BPA's activities and to deal in a very professional, responsible manner with citizens, civic and special interest groups, and individual landowners.

Division of Land Resources researches courthouses and public records to identify and obtain names and addresses of landowners in a general area that may be affected by a project.

BPA places advertising with newspapers and radio stations, provides the news media with information regarding the project, develops flyers to be placed in public places, develops a mailing to "postal patron," and attends county meetings in an effort to reach interested parties not identified in the public records. A toll free telephone number, progress reports, and a newsletter have provided information on a specific project. When requested, BPA also meets with organizations or special interest groups.

BPA holds project scoping meetings, workshops, informational open houses and public meetings to provide information and to receive citizen and landowner comment and input.

When the location of the project has been determined, a BPA representative is assigned as a liaison project person and begins contact with landowners affected by a proposed transmission line right-of-way. Permission to survey for the centerline and use of any required access roads is then acquired. At that time, printed information regarding survey, appraisal, and land acquisition procedures is given the landowner. Landowners are normally contacted by the surveyors and appraisers before they enter the property. A realty specialist (negotiator) contacts the landowner to respond to any questions or concerns the landowner may have. Negotiations are then begun and continue as long as a mutual opinion of value seems to be within reach. A letter is sent to each landowner prior to construction providing them names, addresses, and telephone numbers of BPA personnel and the contractor. Landowners may then contact them when problems arise.

After construction has been completed, BPA personnel again contact landowners to investigate any crop damage claims which resulted from construction activities.

BPA personnel make every effort to be responsive to landowner concerns and will adjust procedures, methods, and personal schedules whenever practicable to serve the landowner and public needs.

14. Please supply a description of BPA's public involvement program with copies of applicable statutory provisions, regulations, and guidelines governing such programs.

BPA's formal public involvement program was initiated in 1978, and the passage of the Regional Act in 1980 gave added impetus to BPA's efforts in this area. We believe there is no single way that is effective for involving citizens in our policy development process, and we have experimented with a number of different approaches. Our major power policy public involvement efforts are structured around the generic procedures established in the attached FEDERAL REGISTER notice (46 FR 26368, May 12, 1981), based on the requirements of Section 4(g)(1) of the Regional Act. For rate-related procedures, BPA follows the more formal requirements of Section 7(i) of the Regional Act, also attached. Finally, we have attached a functional statement listing in some detail the manner in which we carry out the requirements of the previous 2 documents.

15. Please indicate whether BPA feels it is necessary to have an explicit congressional authorization in order to make payments in lieu of taxes. Is BPA prohibited from making payments in lieu of taxes under current law? Please supply appropriate legal analysis to support the conclusion offered.

The answer to both questions is mandated by the Federal Supremacy Doctrine.

Federal agencies are free from State taxes unless Congress waives Federal Supremacy. Mayo v. United States, 319 U.S. 441, 87 L.Ed. 1504 (1943). There is no "clear and unambiguous" waiver of Federal Supremacy in BPA's operating statutes.

The legislative histories of the Bonneville Project Act, the Federal Columbia River Transmission System Act, and the Regional Act make it clear that Congress did not authorize in lieu of tax payments. The legislative history shows why the BPA Administrator may not take such an action without additional authority. A brief analysis of the legislative history follows.

a. The Bonneville Project Act

The legislative history of the Bonneville Project Act precludes BPA from construing that authority exists to permit payments in lieu of taxes. During the week of June 3-8, 1936, the House Committee on Rivers and Harbors held hearings on H.R. 12873, an early draft of the Bonneville Project Act. The Committee considered but rejected a provision for payments in lieu of taxes. Hearings before the House Committee on Rivers and Harbors on H.R. 12873, 74th Cong., 14-17, 19, 58 (June 3-8, 1936). The early version of the act included a direction to BPA to make payments to the States of Oregon and Washington.

> "[W]hen gross operating revenues shall exceed the amount the Federal Power Commission may deem proper and adequate to cover interest charges and amortization . . . the Secretary of the Treasury is authorized and directed to pay . . . Oregon 18-3/4 per centum of such excess and to . . . Washington 18-3/4 per centum of such excess revenues."
> Section 10, H.B. 12873, 74th Congress.

Members of the House Committee considering this legislation regarded this provision as one for payments in lieu of taxes. Statements made by the Committee reveal an unequivocally negative reaction to the proposition of BPA making payments in lieu of taxes. The committee's questioning of Federal Power Commission Solicitor Dozier DeVane is particularly relevant.

"Mr. Parsons. Referring to section 10, pages 8 and 9, provision is made that if there is any surplus revenue above the cost of operation, the Federal Government will pay to the State of Oregon 18-3/4 percent of such excess, and to the State of Washington 18-3/4 percent of such excess revenues: Why should the Federal Government construct this great project to lessen the cost of power to the general public or the consumers, and then pay back to the State 18-3/4 percent of the revenue derived beyond the cost of operation?

"Mr. DeVane. I would rather the representatives of the two States might say something with reference to that. I might add, however, that that provision is the same as the provision in the Boulder Canyon Project Act with reference to Arizona and Nevada.

"Mr. Parsons. It seems to me that those areas are being specially favored already by the construction of such a project, which makes available to those communities cheaper power than other communities enjoy. They enjoy that advantage over other communities that are not so well situated geographically. That being true, why, either in the case of the Boulder Canyon project, or of this one, should the Federal Government contribute this percentage of its revenues to communities that are already being favored beyond other regions of the country?

"Mr. DeVane. It might be suggested by someone that the effect of section 10 would be to keep the rates where there would be no profits.

. . . .

"Mr. Dondero. It is true that according to the last report of the Federal Power Commission those two States, Washington and Oregon, enjoyed the lowest electrical rate of any States in the Union because of the great advantage they had in the way of water power?

"Mr. DeVane. I cannot answer that question.

"Mr. Dondero. Will this Federal project pay exactly the same tax as a private industry that is selling the same commodity?

"Mr. DeVane. I cannot answer that.

"Mr. Dondero. I understood you to state that the reason the Federal Government contributed that 18-3/4 percent of the revenue to the State was because they did not pay the taxes that a private industry would pay.

"Mr. DeVane. I do not know about that. There may be some provision in the original act providing for taxes.

"Mr. Colden. The criticism of public projects is that it removes those enterprises from taxation, or the taxation that applies to privately owned plants. As I understand it, this is an attempt to give the States an amount of revenue approximately equal to what they would obtain if this were a private enterprise.

"Mr. DeVane. That may be the purpose of this provision.

. . . .

"Mr. Parsons. It occurs to me, Mr. Chairman, that in these Federal power projects there would be no construction unless the Federal Government did it, and, consequently, there would be no profit on which to pay taxes to the State. The Federal Government went in and made the improvement, and in making the improvement, they gave a low power rate for both private and public industries. Thereby they give that State a great advantage over some other States that are not so favored geographically. Therefore, the Federal Government should not contribute any of the excess profits in the way of taxes to the States. That is also true of T.V.A.

"Mr. Culkin. In the case of T.V.A., the contribution is 15 percent, ... In this case, the contribution is 37-1/2 percent. Will this witness tell me whether they approve the morality of this--because it opens the door pretty widely--that is, do you approve giving a locality, . . . the benefit of this improvement; the benefit of the disbursements made on account of the improvement; the benefits of navigation; the benefits of the power, with the resulting developments, and the benefit of disbursements that are made during the period of construction, and then making this contribution in addition. The Federal Government after doing all of that, then finally turns around and presents that locality with 37-1/2 percent of the net profits.

"Mr. DeVane. I am really not in a position to argue for or against that provision of the bill. . . .

. . . .

"Mr. Culkin. May I inject right there to say this? Assuming it is a fact that this will result in the industrial development of the State or area, with the resulting increase in property values and increased benefits to these localities, why should the Federal Government pay those two States 37-1/2 percent in addition to all those benefits? I cannot get that.

"Mr. Smith. I think this would be the result, that the project itself will not pay back any direct tax to the State. . . .

. . . .

"Mr. McKeough. . . . I am in sympathy with my colleague's questions with reference to making a gift on top of a gift in the way of paying a bonus in the event the operation of this activity results in a profit. These Federal projects are securing a general contribution from 48 States, and in this

> instance the benefits go to the States of Washington and Oregon in the development of their enterprises. They receive all these benefits and then, in the event the operation is successful enough to yield a profit, they receive this additional bonus from the Government. It will be a gift on top of a gift. I thought there had been a hearing on this matter, and that these questions had probably been answered somewhere else. . . ." Hearings before the House Committee on Rivers and Harbors on H.R. 12873, 74th Congress 14-17 (emphases added).

The discussion set out above shows the committee's clear intent: BPA should not make payments in lieu of taxes. On June 4, 1936, Congressman Smith stated that the Senate Committee had reported out the bill and omitted the section regarding payments in lieu of taxes.

> "Mr. Ekwall. I think Mr. Smith, of Washington, has a little statement he would like to make.
>
> Mr. Smith. Mr. Chairman, in regard to the Bonneville project, the senate committee on yesterday reported the bill out. The bill, as reported out by the Senate committee, omits that part of section 10 which appears to be objectionable to some members of the committee. That is part of the section which provides that the States of Oregon and Washington shall receive 18-3/4 percent each of the revenues derived from the project.
>
> "The Chairman. Do they leave any percentage in the bill?
>
> "Mr. Smith. No: they strike that provision out entirely." Hearings, at p. 19.

And on June 8, 1936, the House Committee confirmed the intent to delete the provision authorizing payments in lieu of taxes.

> "Mr. McKeough. . . . I want to congratulate the Senators and Representatives from Oregon and Washington for giving up the 18-3/4 percent.
>
> "Mr. Ekwall. We never had that.
>
> "Mr. Page. The 18-3/4 percent at Boulder Dam was lifted out because they had actual bona fide private applications for the development of that plant, and in lieu of that tax from that source this allocation was made.
>
> "Mr. McKeough. On the other hand, is it not safe to assume that, with the Federal money expended to create this improvement, the rate would be sufficiently low so as to prove advantageous to the citizens of those two States having the advantage of those rates? In other words, you cannot have your cake and eat it, too." Hearings, at p. 58 (emphasis added).

b. The Federal Columbia River Transmission System Act (Transmission System Act)

The section of the Transmission System Act pertinent to this discussion is section 838i(b).

> "The Administrator may make expenditures from the fund, which shall have been included in his annual budget submitted to Congress, without further appropriation and without fiscal year limitation, but within such specific directives or limitations as may be included in appropriation acts, for any purpose necessary or appropriate to carry out the duties imposed upon the Administrator pursuant to law. . . ." (emphasis added).

This provision gives the Administrator broad authority to make expenditures. But the legislative history of the Transmission System Act refutes construction of this provision to permit payments in lieu of taxes.

If Congress had wanted to waive BPA's immunity from State and local taxes, or commit BPA to make payments in lieu of taxes, the Transmission System Act provided an ideal means for doing so. Before the committees and Congress was a proposal to totally restructure BPA's funding procedures in order to make BPA "self-funding."

Congress was aware that BPA did not make payments in lieu of taxes to State and local governments. During Senate Committee hearings, BPA Administrator Donald Hodel testified that the bill that became the Transmission System Act contained no provision for such payments.

> "Senator McClure. If BPA is to be self-financing as a regular business does it intend to make payments in lieu of taxes to State and local governments on transmission facilities constructed in lieu of financing in this bill?
>
> "Mr. Hodel. There is no provision in the bill to have that." Hearing on S. 3362 Before the Subcommittee on Water and Power Resources of the Senate Committee on Interior and Insular Affiars, 93d Cong., 2d Sess. 138 (1974) (hereafter referred to as Senate Hearings).

Subsequent colloquies between members of Congress and witnesses include many references to the absence of such payments. Id. at 138-9, 211-215, 243-244; House Hearings on H.R. 14168 before the Subcommittee on Water and Power Resources of the House Committee on Interior and Insular Affairs, 93d Cong., 2d Sess. 97-129 (1974). With this information, Congress chose not to include a provision for payment in lieu of taxes.

c. The Regional Act

It has been argued that BPA has authority to make payments in lieu of taxes pursuant to the Regional Act.

Section 7(m)(1) of the Regional Act states:

> "Beginning the first fiscal year after the plan and program required by section 839b(d) and (h) of this title are finally adopted, the Administrator may, subject to the provisions of this section, make annual impact aid payments to the appropriate local governments within the region with respect to major transmission facilities of the Administrator, as defined in section 3(c) of the Federal Columbia River Transmission System Act--." 16 U.S.C. § 839e(m)(1).

A plain reading of this provision shows that Congress authorized "impact aid payments," not tax payments. The legislative history of section 839e(m)(1) mandates the same conclusion.

On May 29, 1980, Representative Williams of Montana introduced a bill that included an amendment to the Transmission System Act that waived BPA's immunity from State and local taxes and authorized payments in lieu of taxes (H.R. 7470 Appendix L). Although no hearings were held, the House Interior Committee's version of the Regional Act incorporated substantially all of Representative Williams' bill as section 8f, an amendment to the Transmission System Act (Appendix M). However, the House Interior Committee deleted the provisions equating the payments with taxes. Representative Williams' bill stated:

> "[T]he Administrator shall make payments on an annual basis to State and local taxing authorities having within their jurisdiction the transmission facilities specified under paragraph (2). Each payment to a taxing authority under this subsection shall be for an amount equal to the amount that would be paid to such taxing authority if the transmission facilities specified under paragraph (2) which are within the jurisdiction of the taxing authority were not exempt from ad valorem taxation." (emphasis added).

Deleting these provisions, the House Interior Committee's version in section 8(f) states:

> "[T]he Administrator shall make annual impact aid payments to State and local governments having within their jurisdiction the transmission facilities described in paragraph (2)."
> H. Rept.No. 96-976, Part II, 96th Cong., 2d Sess., p. 21. (emphasis added).

This change shows that the Interior Committee did not intend to waive BPA's tax immunity or authorize BPA to make payments in lieu of taxes.

As finally passed by Congress, the provision retains the phrase "impact aid payments" and makes no reference to State and local taxes. Moreover, it makes the payments permissive rather than mandatory. The provision also became part of the Regional Act instead of an amendment to the Transmission System Act:

> "[T]he Administrator may, subject to the provisions of this section, make annual impact aid payments to the appropriate local governments within the region with respect to major transmission facilities of the Administrator, as defined in section 3(c) of the Federal Columbia River Transmission System Act--." (emphasis added).

Explaining this provision on the floor of the House, Congressman Dingell expressly stated that impact aid payments excluded payments in lieu of taxes:

> "BPA will have to determine a formula on a uniform, regionwide basis for making payments. This formula is to be established by rule in accordance with the procedures set forth in subsection (i) of this section. The rule will become effective on its approval by FERC after FERC considers its effect on rates otherwise established pursuant to this section. No payments can be made until the rule is adopted. In developing a formula, the Administrator can identify and take into account the local governmental services provided to the BPA concerning the facilities and the associated costs to such governments as a result of such facilities. The intent is to make these payments

> reflect the services provided by the governments and not any taxes that may have been lost or estimated to have been lost by the communities. This is not a payment-in-lieu-of-taxes provision." 126 Cong. Rec. at page H 10685 (Nov. 17, 1980) (emphasis added).

Congressman Dingell's statements make it clear that section 839e(m)(1) does not authorize BPA to make payments in lieu of State and local taxes. Congress only authorized BPA to pay for services through impact aid payments.

d. The Payments in Lieu of Taxes Act

The Payment in Lieu of Taxes Act (PILT Act), 31 U.S.C. section 1601-1607, does not authorize BPA to make payments in lieu of taxes. The purpose of the PILT Act is to relieve State and local governments of fiscal burdens caused by Federal ownership of large areas of public domain lands as park and wilderness areas:

> "The intent of these payments is to equalize the fiscal burden caused by the acquisition of private lands for new parks and wilderness areas and to reduce the immediate and direct financial impact on the affected local jurisdiction. This burden is often cited as the most important source of opposition to the establishment of new parks where land, however valuable to our national heritage, is now on the tax rolls and producing revenue." S. Rep. No. 1262, 94th Cong., 2d Sess. 14, reprinted in [1976] U.S. Code Cong. & Ad. News 5968, 5977 (emphasis added).

The PILT Act defines such lands as entitlement lands and authorizes and directs the Secretary of the Interior to make payment to local governments only for such lands. 31 U.S.C. 1601, 1606(a).

The definition of entitlement lands in 31 U.S.C. 1606(a) excludes other lands owned by the Federal Government, such as lands owned by BPA. Indeed, the Senate Report expressly excludes BPA lands:

> "Major Federal holdings not within the scope of H.R. 9719 are as follows (as of June 30, 1974):
>
> * * * *
>
> "Federal administering agency
> Acreage
>
> * * * *
>
> Bonneville Power Administration
> 13,349.8" S. Rep. No. 1262, 94th Cong., 2d Sess. 14, reprinted in [1976] U.S. Code Cong. & Ad. News 5968, 5977, n. 15.

Congress chose to exclude such lands because they do not demand the same level of governmental services as those for which Congress chose to make payments:

> "The Committee concluded that the scope of this legislation should be limited to the above described lands and not include other land within the jurisdiction of the Department of the Interior, Agriculture, and Defense--e.g. national wildlife and game refuges and Bureau of Mines lands, Agricultural Research Service and Soil Conservation

> Service lands, and lands of the other armed services--or lands of other agencies--e.g. GSA, NASA, ERDA, or DOT lands. While there are certainly fiscal burdens associated with tax-exempt status of these other lands, they do not demand the same level of need for governmental services as those included within the scope of the legislation. Moreover, in the case of active military lands and wildlife and game refuges, in lieu payments similar to that provided in H.R. 9719 already exist." S. Rep. No. 1262, 94th Cong., 2d Sess. 13-14, reprinted in [1976] U.S. Code Cong. & Ad. News 5968, 5976-7 (emphasis added).

The PILT Act shows that when it decides to make payments in lieu of taxes, Congress specifically refers to them. Absent such express statements in the statute or its legislative history, no intent or authorization to make such payments exists. In contrast to the PILT Act, the statutes and legislative histories of the Bonneville Project Act, the Transmission System Act, and the Regional Act not only fail to expressly direct payments in lieu of taxes, but also show congressional awareness of the option to provide such payments and a decision by Congress not to make such payments.

16. Please indicate whether BPA officials have participated in any way in the development of the Shearson American Express proposal for financing the outstanding debt of WPPSS nuclear plants numbers 4 and 5. Does BPA have a position on the Shearson American Express plan? Does BPA have, or is it developing, an alternative plan for financing the debt of units 4 and 5? Has BPA analyzed the alternatives for financing the debt? If so, please provide copies of such analyses for the record.

BPA officials have not participated in the development of the Shearson American Express proposal, which we neither support nor criticize. As BPA has no contractual involvement in WNP 4 and 5, it would not be appropriate for BPA to develop an alternative plan for financing the debt associated with the projects. BPA has not made any written analyses of alternatives for financing the debt.

17. You supplied for the record a list of 149 meetings that BPA officials had conducted or attended in Montana, describing the list as a sign of "BPA's commitment to reach out to the public, to listen, and to respond." A significant number of witnesses at the hearing indicated their feeling that, while BPA held meetings, the sessions had little effect on BPA's decisions or actions. It is impossible to determine the facts without something more than a chronological list of BPA meetings. Accordingly, for each meeting on the BPA-submitted list, please identify the useful information obtained by BPA and the response made by the agency. If this information cannot be obtained for some of the meetings, please indicate that such results are unknown for those particular meetings.

The public meetings and other meetings with individuals, officials, and groups did affect the actions and decisions of the involved Federal land management agencies and BPA. Starting in 1979, meetings were held covering the Garrison-Spokane line. As a result of early meetings, alternates north and south of the proposed Clark Fork Valley route west from Garrison were identified and are being reviewed. Input from the public led to local alternative locations to minimize the important impacts identified by the public and agency input. These are being analyzed and will be documented in the final EIS along with comments and responses. This information will be reviewed with the decisionmakers along with comments on the final EIS in arriving at a final location decision for the Garrison-Spokane line.

On the Townsend-Garrison line, meetings on centerline locations were started early in 1980 following the 1979 Record of Decision (ROD) on the corridor. Input from these meetings led to alternative centerlines being considered outside the original corridor. This required a supplement to the EIS, which was reviewed in a series of meetings through 1981. The final decision on centerline, as documented in the enclosed August 18, 1981, Record of Decision, relocated the line to the north of Boulder, north of Deer Lodge, and changed location of the Garrison Substation.

The October 8, 1981, meeting with the Powell County Commissioners resulted in BPA funding replacement of two county bridges and improved portions of the county road to be used for the Garrison Substation entrance road.

18. Is BPA considering or evaluating any changes in the statutory authority governing the agency or regional power issues in general, including changes in the Regional Power Act? If so, what is the nature of these changes? Does BPA have any reservations about the statutory authority currently governing the agency or regional power issues in general? If so, what are they?

BPA is neither considering nor evaluating any changes in the statutory authority governing the agency or regional power issues in general, including changes in the Regional Power Act. BPA has no reservations about the statutory authority currently governing the agency or regional power issues in general.

19. Has BPA supplied all documents and memoranda relating to discussions of BPA involvement in the construction of the twin 500 kv transmission lines from Townsend to Spokane? If not, please supply any documents omitted or overlooked in previous submissions.

To the best of our knowledge, we have provided all pertinent documentation relating to this transmission project. We will be pleased to accommodate any additional requests for such materials.

20. Please indicate the status of BPA's discussions with the Regional Power Council concerning the potential for NEPA delay of the fish and wildlife enhancement program. Please supply a detailed analysis of BPA's legal position on the NEPA issue.

A good starting point for understanding BPA's actions being taken to comply with NEPA is to refer to the BPA Administrator's letter of September 8, 1982, to Regional Planning Council Chairman Evans (Appendix O). Briefly, the letter states that the NEPA process is part of all Federal agency decisionmaking on projects that affect the environment, that BPA is doing everything it can to expedite the NEPA process and make decisions as rapidly as possible, and that BPA will cooperate with all other agencies to meet the NEPA requirements to establish a water budget as a firm constraint on river operations. The letter reiterates and summarizes meetings that have been held on NEPA compliance strategies, data gathering that is ongoing, and BPA organizational changes that have taken place to gear up for administering the fish program.

As to BPA's legal position "on the NEPA issue," there are really a number of NEPA issues that have arisen. One of the first NEPA questions to arise was whether the Federal agencies were required to prepare an EIS on the Regional Planning Council's Fish and Wildlife Program itself. Such an EIS would be programmatic in nature and would precede any individual projects. The Federal agencies at this time are not planning such an EIS. It is not certain that an EIS of such broad scope will ever be necessary. Atlanta Coalition v. Atlanta Regional Commission, 13 ERC 1497, 1507 (5th Cir. 1979) ("the possibility of federal funding in the future for a project or group of projects does not make that project or projects 'major federal action' during the planning stage," and thus an EIS was not necessary on a Regional Development Plan in that case).

Another early NEPA question was whether the Regional Planning Council's Fish and Wildlife Program would constitute the "functional equivalent" of an EIS, thus making a new Federal EIS unnecessary. BPA's position is that it does not seem likely that a functional equivalent will exist. This is because there are many components of an EIS established by regulation that are not necessarily part of the Regional Planning Council's procedures (e.g., statement of underlying purpose and need, 40 CFR 1502.13), and the Regional Planning Council may not qualify as an "agency primarily engaged in the examination of environmental questions," EDF v. Blum, 458 F.Supp. 650, n. 5 (D.C. D.C. 1978), which is prerequisite to establishing a functional equivalency. At any rate, information developed by the Regional Planning Council staff during adoption of the Fish and Wildlife Program is available to the Federal entities and can be used in preparing NEPA documentation, including EIS's.

As indicated in BPA's September 8, 1982, letter (Appendix O), water for fish flows will be provided during the current operating year (1982-83), subject to the availability of water and the concurrence of the U.S. Army Corps of Engineers and the Bureau of Reclamation. Whether or not a "water budget" can be implemented in water year 1983-84 is dependent upon the status of the NEPA process at that time. BPA believes interim arrangements can be made pending completion of the more comprehensive EIS. American Horse Protection Ass'n. v. Frizzell, 403 F.Supp. 1206, n. 9 (D. Nev. 1975) (wild horse roundup as an interim measure to preserve the range is permissible pending a long-range solution to overgrazing in EIS).

It is certain that implementation of the Fish and Wildlife Program will give rise to many NEPA issues as actions are proposed, documents are scoped, decisions are made. BPA's position is to make the NEPA process as open as possible, to involve as many interested persons and agencies as possible, to assure that NEPA is carried out in both letter and spirit.

21. Last, it would be appreciated if you would respond to the contentions raised by numerous witnesses about BPA's lack of responsiveness to citizen groups, local governments, and state governments. Does BPA believe these contentions point simply to an image problem? Is it the agency view that it will always be a controversial, heavily criticized entity, or is there a plan for efforts to become more responsive to the broad range of complaints raised at this hearing and elsewhere? If so, please detail the steps the agency intends to take.

BPA does not believe that the allegations made by various citizen groups, local and State governments "point simply to an image problem." We believe that these contentions reflect a growing concern for the environment, an increasing distrust of "Big Government," and a growing support for local control of property rights and the destinies of private citizens. Many people--especially those living in rural areas--are loath to accept technological developments which they perceive as offering no socioeconomic benefits within their local frame of reference. BPA and the electric utility industry as a whole are not the only entities to encounter such resistance--the same is being experienced by transportation planners, local service districts, the military, and various segments of industry and commerce. A growing preponderance of public works and private developments are being confronted with public opposition unless they can show a near-term potential for improving the local economy and/or the standard of living in the communities directly affected by the proposed developments.

BPA is keenly aware of these sentiments and is sympathetic to them. While we in no way are resigned to being viewed as a "controversial, heavily criticized entity," the fact remains that large transmission towers are seen as unwelcome intruders unless those directly impacted can identify personal or community benefits associated with such facilities. In a broad sense, BPA and the utility industry as a whole must do a better job of explaining the long-term, regional benefits which accrue from an integrated, reliable high-voltage transmission grid.

Throughout its involvement in the Colstrip Transmission Project, BPA has sought to be responsive to the concerns of local citizens and State and local governments. If there were shortcomings in our performance in this regard, we have made an earnest effort to overcome them. We have and will continue to be accessible, reasonable, candid, and understanding in our relations with all concerned parties. This does not mean that we can accede to every suggestion or criticism which is raised regarding a proposed right-of-way or the siting of individual transmission towers. But we have tried to treat all such concerns in a courteous, openminded, and helpful manner, including seeking methods to accommodate ofttimes conflicting requests or recommendations. We have learned much in the process, and we firmly intend to apply this learning experience to the utmost as we proceed with the planning and construction of the Colstrip Transmission Project and ongoing projects throughout the Pacific Northwest.

APPENDIX A

UNITED STATES GOVERNMENT

Memorandum

U.S. Department of Energy

BPA

DATE : June 12, 1980 AMENDED

In reply refer to : AP

TO : Edward W. Sienkiewicz, Acting
Assistant Power Manager - P

FROM : Kurt R. Casad, Attorney
Office of General Counsel - AP
Kurt R. Casad

SUBJECT: Bonneville's Involvement Regarding the Cogeneration Section in PURPA

QUESTION ONE: Does PURPA Section 210 give Bonneville a new source of purchase authority?

The authority of the Bonneville Power Administration to purchase electric power is longstanding and has been recognized on both an implied and express level.

Bonneville's implied authority has been discussed at length in numerous legal opinions.[1] Such authority may generally be described as the right to purchase energy that can demonstrably be shown to maximize the economical and efficient operation of the hydro projects from which Bonneville markets power.[2]

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[1] Bonneville's implied authority is discussed at length in the following legal opinions: (1) Opinion of the Regional Solicitor, February 19, 1962, Purchase of Energy from the Hanford Reactor; (2) Opinion of the Solicitor of the Department of Interior, December 18, 1968 (M-36769), Purchase of Power for Resale by the Bonneville Power Administration; (3) Opinion of the Solicitor of the Department of Interior, September 21, 1970 (M-36812), Authority of the Bonneville Power Administrator to Acquire Power Output from Non-Federal Plants in the Hydro Thermal Power Program; (4) Opinion of the General Counsel of the Bonneville Power Administration, March 2, 1979, Need for Express Congressional Approval Authorizing BPA to Implement Long-Range Conservation Programs. See, too, Opinion of the Chief Counsel of the Department of the Interior, November 16, 1945, concerning a like authority for the Southwestern Power Administration to acquire steam capacity to firm hydro projects.

[2] See Opinion of the General Counsel of the Bonneville Power Administration, March 2, 1979, Need for Express Congressional Approval Authorizing BPA to Implement Long-Range Conservation Programs.

Bonneville's express authority is provided, primarily, in the Federal Columbia River Transmission System Act, Public Law 93-454, 16 U.S.C. 838 et seq., which essentially restates what was previously implied authority. This Act provides, at Section 11(b)(6):

> (b) The Administrator may make expenditures from the [Bonneville Power Administration] fund, which shall have been included in his annual budget submitted to Congress, without further appropriation and without fiscal year limitation, but within such specific directives or limitations as may be included in appropriation acts, for any purpose necessary or appropriate to carry out the duties imposed upon the Administrator pursuant to law, including but not limited to —
>
> (6) purchase of electric power (including the entitlement of electric plant capability) (i) on a short-term basis to meet temporary deficiencies in electric power which the Administrator is obligated by contract to supply, or (ii) if such purchase has been heretofore authorized or is made with funds expressly appropriated for such purchase by the Congress, or (iii) if to be paid for with funds provided by other entities for such purpose under a trust or agency arrangement.

Bonneville's purchase authority, implied and express, is subject to specific limitations. The express authority is limited by the conditions expressed in subparts (i), (ii), and (iii) of section 11(b)(6) of the Transmission Act and the implied authority is limited by the condition, broadly stated, that the Administrator must first find that an acquisition will enable him to carry out his statutory obligations in a more effective, efficient, or economical manner.

The Public Utilities Regulatory Policies Act (PURPA) provides that electric utilities are required to purchase electric energy from cogeneration and small power production facilities.

Section 3(4) of PURPA defines the term "electric utility" to include "any person, State agency, or Federal agency, which sells electric energy." The Bonneville Power Administration, and other Federal Power Marketing Administrations, are thus subject to the provisions of Section 210 of PURPA and the rules adopted by the Federal Energy Regulatory Commission (FERC) pursuant thereto. This definition is to be distinguished from the definition of "electric utility" provided in Section 201 of PURPA. The Section 201 definition, which defines "electric utility" to exclude Federal power marketing agencies, amends Section 3 of the Federal Power Act and does not apply to Section 210 of PURPA.

Section 210 of PURPA provides, in part:

> SEC. 210. COGENERATION AND SMALL POWER PRODUCTION.
>
> (a) Cogeneration and Small Power Production Rules.—Not later than 1 year after the date of enactment of this Act, the Commission shall prescribe, and from time to time thereafter revise, such rules as it determines necessary to encourage cogeneration and small power production which rules require electric utilities to offer to—
>
> (1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and
>
> (2) purchase electric energy from such facilities.

The rules thus prescribed, at 45 Fed. Reg. 12235 (1980), provide, in part:

> § 292.303 Electric utility obligations under this subpart.
> (a) Obligation to purchase from qualifying facilities. Each electric utility shall purchase, in accordance with § 292.304, any energy and capacity which is made available from a qualifying facility:
> (1) Directly to the electric utility; or
> (2) Indirectly to the electric utility in accordance with paragraph (d) of this section.

PURPA does not expressly provide Bonneville with new purchase authority. The question therefore arises whether PURPA provides such authority by an implied repeal of the limitations provided in the Federal Columbia River Transmission System Act in Section 11(b)(6), noted above.

The United States Congress is presumed to intend to create a consistent body of law. Stevens v. Biddle, 298 F. 209 (8th Cir. 1924). Consistent with this principle, subsequent legislation is not presumed to repeal existing law unless such an intent is expressly provided. Frost v. Wenie, 157 U.S. 46, 39 L.Ed. 614, 15 S.Ct. 532 (1894); United States v. Greathouse, 166 U.S. 601, 41 L.Ed. 1130, 17 S.Ct. 701 (1897); United States v. Noce, 268 U.S. 613, 69 L.Ed. 1116, 45 S.Ct. 610 (1925).

It has been noted that legislative history may play an important role in determining implied repeals. "As the legislative intent defines the operation of the statute and divulges the purpose and limitations of the enactment, it may establish or deny a repeal by implication." Statutes and Statutory Construction, 4th ed., Sands, D.C. Vol. 1A § 23.09, p. 223, 1972. In the instant case the legislative history of PURPA provides no indication of an intent to repeal the limitations imposed on the authority of Bonneville to purchase electric power or to create new purchasing authority for Federal Power Marketing Administrations.

It has also been held that if an inconsistency between two acts is not fatal to the operation of either, the acts may stand with no repeal effected. United States v. Greathouse, 166 U.S. 601, 41 L.Ed. 1130, 17 S.Ct. 701 (1897); Stewart v. United States, 106 F.2d 405 (9th Cir. 1939). This is of particular significance in the present case as it is indeed possible for PURPA and the Federal Columbia River Transmission System Act to be compatible. This would require that Bonneville purchase electric energy from cogeneration and small power production facilities in those instances where the Administrator of Bonneville may properly exercise his limited purchase authority.

While it can be concluded, therefore, that Section 210 of PURPA does not provide new purchase authority for the Bonneville Power Administration, it should be noted that Section 210 does condition the exercise of such authority. Where Bonneville has a program need to purchase power, under the limited conditions whereby Bonneville may purchase power under existing law, there is a requirement that such needs, to the extent practicable, be fulfilled by purchases from qualifying facilities under the rules prescribed by the FERC.

Bonneville, for example, might be obligated to purchase power and, by load factoring, produce additional firm energy to meet obligations to preference customers through June 30, 1983. In determining the source of energy to meet that load, PURPA imposes upon Bonneville the obligation to purchase power, if available and feasible, from qualifying small power producers and cogenerators. It is possible that a cogenerator or small power producer would not execute a contract only through June 30, 1983, to provide power to Bonneville, which might necessitate a longer-term contract in order to obtain an assured energy supply. It would be necessary in such a circumstance to examine each proposal to determine whether the proposal falls under Section 11(b)(6) of the Federal Columbia River Transmission System Act as a purchase of power on a short-term basis to meet temporary deficiencies in electric power which the Administrator is obligated by contract to supply.

The general requirement to purchase power from qualifying facilities in the exercise of Bonneville's purchase authority, however, is subject to certain conditions. Section 210(a) of PURPA provides, in part:

> "(a) COGENERATION AND SMALL POWER PRODUCTION RULES.—Not later than 1 year after the date of enactment of this Act, the Commission shall prescribe, and from time to time thereafter revise, such rules as it determines necessary to encourage cogeneration and small power production which rules require electric utilities to offer to—
>
> "(1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities, and
>
> "(2) purchase electric energy from such facilities."

Section 210(b) of PURPA provides, in part:

> "No such rule prescribed under subsection (a) shall provide for a rate which exceeds the incremental cost to the electric utility of alternative electric energy."

It is thus clear that Bonneville is not required to purchase from qualifying facilities at all times. This is made particularly clear in the rules prescribed by FERC pursuant to PURPA which provide, at 45 F.R. 12236 (1980):

> "(f) Periods during which purchases not required.
> "(1) Any electric utility which gives notice pursuant to paragraph (f)(2) of this section will not be required to purchase electric energy or capacity during any period during which, due to operational circumstances, purchases from qualifying facilities will result in costs greater than those which the utility would incur if it did not make such purchases, but instead generated an equivalent amount of energy itself."

In light of the foregoing discussion, it can be concluded that PURPA does not provide Bonneville with new purchase authority, although PURPA does affect the exercise of purchase authority, in certain circumstances, by imposing obligations to purchase energy from qualifying cogeneration and small power production facilities.

QUESTION TWO: Does PURPA modify the preference clause? That is, would a cogenerator or small power producer have to be served as a direct customer of BPA even if we are resource deficient?

The Bonneville Project Act of 1937, 16 U.S.C. § 832 et seq., provides in Sections 4(a) and (b):

> (a) In order to insure that the facilities for the generation of electric energy at the Bonneville project shall be operated for the benefit of the general public, and particularly of domestic and rural consumers, the administrator shall at all times, in disposing of electric energy generated at said project, give preference and priority to public bodies and cooperatives. [50 Stat. 733; 16 U.S.C. 832c(a).]
>
> (b) . . . in the event that . . . there shall be conflicting or competing applications for an allocation of electric energy between any public body or cooperative on the one hand and a private agency of any character on the other, the application of such public body or cooperative shall be granted. [50 Stat. 733, as amended by 54 Stat. 47; 16 U.S.C. 832c(b).]

The Public Utility Regulatory Policies Act provides, at Section 210(a):

> (a) Cogeneration and Small Power Production Rules.—Not later than 1 year after the date of enactment of this Act, the Commission shall prescribe, and from time to time thereafter revise, such rules as it determines necessary to encourage cogeneration and small power production which rules require electric utilities to offer to--
>
> (1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and
>
> (2) purchase electric energy from such facilities..

The rules thus prescribed by the Federal Energy Regulatory Commission with regard to the sale of electric energy provide, at § 292.303(b):

> "Obligation to sell to qualifying facilities. Each electric utility shall sell to any qualifying facility, in accordance with § 292.305, any energy and capacity requested by the qualifying facility."

Subsection 292.305 provides in pertinent part:

> Additional Services to be Provided to Qualifying Facilities. (1) Upon request of a qualifying facility, each electric utility shall provide:
>
> (i) Supplementary power;
> (ii) Back-up power;
> (iii) Maintenance power; and
> (iv) Interruptible power.
>
> (2) The State regulatory authority (with respect to any electric utility over which it has ratemaking authority) and the Commission (with respect to any nonregulated electric utility) may waive any requirement of paragraph (b)(1) of this section if, after notice in the area served by the electric utility and after opportunity for public comment, the electric utility demonstrates and the State regulatory authority or the Commission, as the case may be, finds that compliance with such requirement will:
>
> (i) Impair the electric utility's ability to render adequate service to its customers; or
> (ii) Place an undue burden on the electric utility.

A comparison of the foregoing statutes raises the question of whether PURPA modifies the preference clause set forth in Section 4(a) of the Bonneville Project Act.

The preference clause has been used in Federal power marketing statutes since 1906. In order for this longstanding provision of Federal law to be modified by PURPA, there must exist either an express or implied amendment or repeal of such provision.

PURPA does not expressly modify the preference clause of the Bonneville Project Act. This requires, consequently, analysis of the possibility of an implied amendment or repeal. Such an analysis in the preceding section with regard to purchase authority noted that (1) Congress is presumed to intend to create a consistent body of law, (2) subsequent legislation is not presumed to repeal existing law unless such intent is expressly provided, (3) legislative history may be helpful in establishing or denying a repeal by implication, and (4) if an inconsistency between two acts is not fatal to the operation of either, the acts may stand with no repeal effected.

The legislative history of PURPA is silent with regard to modification of the preference clause. The inconsistency of the two Acts with regard to the sale of electric energy by Federal Power Marketing Administrations, however, is not fatal to the operation of either.

It must be noted initially that cogeneration and small power production facilities are generally not preference customers and are consequently not entitled to the privileges such customers receive. A Federal Power Marketing Administration (PMA) could not sell power to a qualifying facility which a preference customer was ready, willing and able to purchase. Even assuming that a qualifying facility became a preference customer, Bonneville is neither obligated nor authorized to breach valid existing contracts with customers in order to provide service to such a facility.

The demands of qualifying facilities, however, play a major role in determining the ability of Bonneville to sell electric energy to such facilities. If the need of the facility were not one of firm power over an extended period but rather replacement power in the event the facility is unable to provide its own requirements (due to such reasons as a nonfunctioning energy source, facility maintenance, or emergency), it is possible that Bonneville could provide load shaping and standby.

It can be concluded, therefore, that PURPA does not modify the preference clause of the Bonneville Project Act, but that there is a requirement that Bonneville engage in sales with qualifying facilities to the extent that such transactions do not interfere with Bonneville's ability to serve its firm load obligations to its customers.

QUESTION THREE: What types of services must Bonneville provide to a cogenerator? Must we build transmission to a cogeneration or small power production site either (a) for Bonneville to directly serve and purchase resources from a cogenerator or small power producer or (b) to provide third party wheeling?

Certain sections of Title II of the Public Utility Regulatory Policies Act involve amendments to the Federal Power Act. Matters relating to interconnection are provided in Section 202 of PURPA, which amends Part II of the Federal Power Act to add a new Section 210 thereto. This Section provides in pertinent part:

> "SEC. 210.(a)(1) Upon application of any electric utility, Federal power marketing agency, qualifying cogenerator, or qualifying small power producer, the Commission may issue an order requiring —
>
> (A) the physical connection of any cogeneration facility, any small power production facility, or the transmission facilities of any electric utility, with the facilities of such applicant . . .
>
> * * * *
>
> (2) Any State regulatory authority may apply to the Commission for an order for any action referred to in subparagraph (A) . . . of paragraph (1). No such order may be issued by the Commission with respect to a Federal power marketing agency upon application of a State regulatory authority.
>
> * * * *
>
> (d) The Commission may, on its own motion, . . . issue an order requiring any action described in subsection (a)(1) . . . . No such order may be issued upon the Commission's own motion with respect to a Federal power maketing agency."

The proper construction of this Section requires understanding the definition of "electric utility" under the Federal Power Act. This definition is provided in Section 201 of PURPA which amends Section 3 of the Federal Power Act to provide:

> "(22) 'electric utility' means any person or State agency which sells electric energy; such term includes the Tennessee Valley Authority, but does not include any Federal power marketing agency."

It is therefore clear that a Federal Power Marketing Administration may use the provisions of PURPA to obtain the assistance of the FERC in requiring an unwilling cogeneration or small power production facility, or electric utility with transmission facilities, to interconnect with a PMA. It is also clear, however, that cogeneration and small power production facilities, electric utilities, State regulatory agencies and the FERC may not require interconnection by a PMA.

Independent of the provisions of PURPA, the Bonneville Power Administration possesses interconnection authority pursuant to the Federal Columbia River Transmission System Act, 16 U.S.C. 838 et seq. The Act provides at Section 4, in part:

> SEC. 4. The Secretary of the Interior, acting by and through the Administrator, shall operate and maintain the Federal transmission system within the Pacific Northwest and shall construct improvements, betterments, and additions to and replacements of such system within the Pacific Northwest as he determines are appropriate and required to:
>
> (a) Integrate and transmit the electric power from existing or additional Federal or non-Federal generating units;
>
> (b) provide service to the Administrator's customers;
>
> (c) provide interregional transmission facilities; or
>
> (d) maintain the electrical stability and electrical reliability of the Federal system . . . .

It is thus clear that Bonneville possesses the authority to interconnect with cogeneration and small power production facilities, although Bonneville has no statutory obligation to do so.

A similar statutory analysis is appropriate for purposes of wheeling. Section 203 of PURPA amends the Federal Power Act at Section 211 to provide:

> SEC. 211(a) Any electric utility or Federal power marketing agency may apply to the Commission for an order under this subsection requiring any other electric utility to provide transmission services to the applicant (including any enlargement of transmission capacity necessary to provide such services.)
>
> * * * *
>
> (b) Any electric utility, or Federal power marketing agency, which purchases electric energy for resale from any other electric utility may apply to the Commission for an order under this subsection requiring such other electric utility to provide transmission services to the applicant (including any increase in transmission capacity necessary to provide such services.)

As noted above, the definition of "electric utility" for purposes of the Federal Power Act does not include "any Federal power marketing agency." The effect of this definition upon the foregoing subsections allows a Federal PMA to apply to the FERC for an order requiring an electric utility to provide transmission services to the PMA. Section 211 does not, however, allow electric utilities to apply to the FERC in order to require a PMA to provide transmission services to the utility.

With regard to both interconnection and wheeling, Section 204 of PURPA creates Section 212 of the Power Act which provides that applicants for orders under Section 210 [interconnection] or 211 [wheeling] must demonstrate readiness, willingness and ability to reimburse the party subject to such order for that party's share of costs and, in the case of transmission services, a reasonable rate of return on such costs.

Also with regard to both interconnection and wheeling, Bonneville is not required to use the provisions of PURPA and the Federal Power Act to achieve its objectives. Section 204 of PURPA, creating Section 212 of the Federal Power Act, provides at Section 212(e):

> "No provision of Section 210 [interconnection] or 211 [wheeling] shall be treated — (1) as requiring any person to utilize the authority of such section 210 or 211 in lieu of any other authority of law . . ."

It can be concluded, therefore, that PURPA does not impose new obligations upon the Bonneville Power Administration with respect to interconnection and wheeling. PURPA does provide, however, in amendments to the Federal Power Act, that Bonneville may use the provisions of the Federal Power Act to facilitate its interconnection and wheeling objectives.

In the event Bonneville were to engage in purchases or sales with qualifying facilities, however, Bonneville would make necessary interconnections, § 292.303(c), with costs to be paid by the qualifying facility, § 292.306.

KCasad:ljh:1915B

APPENDIX I

DEPARTMENT OF ENERGY
Bonneville Power Administration
PROCEDURE FOR PUBLIC PARTICIPATION IN MAJOR REGIONAL POWER POLICY FORMULATION

AGENCY: Bonneville Power Administration, Department of Energy (BPA).

ACTION: Revision of Procedure for Public Participation in Major Regional Power Policy Formulation.

SUMMARY: The Bonneville Power Administration is revising its procedure to comply with the public participation requirements of Pub. L. 96-501, the Pacific Northwest Electric Power Planning and Conservation Act, (Regional Act) enacted on December 5, 1980. The revision expands the scope of the procedure to include major regional power policies as stated in Section 4(g)(1) of Pub. L. 96-501.

EFFECTIVE DATE: The procedure will be effective May 12, 1981.

FOR FURTHER INFORMATION CONTACT: Ms. Donna L. Geiger, Public Involvement Coordinator, P.O. Box 12999, Portland, Oregon 97212, 503-234-3361, extension 4261. Oregon callers may use the toll-free number 800-452-8429; callers in California, Idaho, Montana, Nevada, Utah, Wyoming, and Washington may use 800-547-6048.

SUPPLEMENTARY INFORMATION: Since enactment of Pub. L. 96-501, the Pacific Northwest Electric Energy Power Planning and Conservation Act (Regional Act), BPA has greatly enlarged its public participation activities. This expansion is in recognition of the Regional Act's directive that in the interest of insuring widespread public involvement in the formulation of major regional power policies, the Administrator maintain comprehensive programs to inform the public in the Northwest of major regional power issues, to obtain public views, and to secure the advice and consultation of the Administrator's customers and others. These procedures are one means by which the Administrator will seek to comply with this directive.

BPA is revising its existing Procedure for Public Participation in Marketing Policy Formulation as published November 5, 1980. The new procedure follows and more accurately depicts the Regional Act's requirements in the public involvement area. The scope of activities covered by the procedure is broadened from Major Power Marketing Policy Formulation to development of Major Regional Power Policies. Policies may include BPA activities in addition to the power marketing activities covered by the earlier procedure. In addition, the revised procedure recognizes that public meetings and other activities may be appropriate means for achieving public consultation where public comment is important but in which no major regional power policy is involved.

The direction of the revision provides flexibility for time periods, transcription of Information Forums, and the content of Notices. BPA believes that the revised procedure comports with the public participation directives of the Regional Act while preserving BPA's ability to plan public participation activities for major regional power policies. In addition, the revised procedure makes clear the policies for which this procedure would be required. Other policies or matters may involve a simplified public meeting process where appropriate and where circumstances permit. BPA will make use of other procedures as required and provided by law.

The text of the revised procedure is as follows:

Procedure for Public Participation in Major Regional Power Policy Formulation.

1. Purpose and Scope. The purpose of this procedure is to permit interested persons to participate in the development of BPA Major Regional Power Policies, as required by section 4(g)(1) of Pub. L. 96-501, the Pacific Northwest Electric Power Planning and Conservation Act (Regional Act). This procedure is limited to such major regional power issues as identified by BPA. This procedure shall not apply to:

a. policies for which any other procedure is provided by law;

b. interpretive rulemaking and general statements of policy which do not involve major regional power issues; or

c. rules of agency organization, procedure, or practice; or

d. policies which are appropriate for the public meeting procedures described in Section 5.

2. Definitions.

a. Administrator. The Bonneville Power Administrator.

b. Area Managers/District Managers. BPA line officials responsible for BPA activities in designated geographical areas, including but not limited to Power Management, Engineering and Construction, Operation and Maintenance, and policy implementation and administration. The Area and District Managers are local contact points for persons interested in BPA matters.

c. Bonneville Power Administration. A power marketing administration of the Department of Energy referred to in the Bonneville Project Act of 1937, the Federal Columbia River Transmission System Act of 1974, the Department of Energy Organization Act of 1977, and the Pacific Northwest Electric Power Planning and Conservation Act of 1980.

d. Customer. A person or entity having a direct relationship with BPA as the result of contractual arrangements for the purchase, exchange, transfer, assignment, or sale of electric power and energy, related services, or transmission capability to, with, or from BPA.

e. Evaluation of the Record. A written evaluation by the Responsible Official which includes (1) a summary of the major comments, criticisms, support, and alternatives offered to the Proposed Policy, (2) a summary of available information discussing the need for and anticipated effect of such Policy and the alternatives offered; and (3) an analysis and recommendation regarding the Proposed Policy, the alternatives offered, and the reasons therefor.

f. Interested Person. Any person, group, or entity with an interest in the Proposed Policy.

g. Major Regional Power Policy (Policy). An agency statement of future effect and general applicability designed to implement or prescribe policy which the Administrator identifies as involving major regional power issues. Major Regional Power Policy does not include the development and execution of particular agreements, contracts, or other instruments between BPA and its customers.

h. Notice. A notification required by this procedure and published in the FEDERAL REGISTER or elsewhere where actual and timely notice of the proposed Policy can be assured. Most Notices will be published in the FEDERAL REGISTER. However, Notices of a restricted nature or Notices of a limited or local applicability may be published elsewhere if (1) directed by the Administrator, and (2) if reasonably calculated to give actual and timely notice. By FEDERAL REGISTER Notice, or as otherwise herein provided, BPA will (1) give notice of its intent to develop a new Policy; (2) present a Proposed Policy; (3) announce opportunities for interested persons to comment on the Proposed Policy; and (4) promulgate the Policy as adopted by the Administrator.

Notices shall be effective on date of publication unless otherwise stated. Wherever a time period is provided, the date of publication shall determine the commencement of the time period unless otherwise stated.

i. Official Record. Except as otherwise may be expressly provided by law, the compiled and indexed records which document the development of the Proposed Policy. The Official Record is the responsibility of the Public Involvement Coordinator and shall contain the following: (1) all FEDERAL REGISTER or other Notices provided for by these procedures; (2) a transcript of oral comments taken at public comment forums, including documents and exhibits; (3) written comments, data, and questions from interested persons, and BPA's replies; (4) Evaluation of the Official Record; (5) the Record of Decision; and (6) any other information the Responsible Official determines is relevant. The Official Record shall be available for inspection or copying.

j. Proposed Policy. A new Major Regional Power Policy which is under consideration for adoption.

k. Public Involvement Coordinator. The BPA employee responsible for monitoring the development of new Policies to assure the opportunity for and documenting the involvement of interested persons in Policy development. The Public Involvement Coordinator receives public comment, maintains the Official Record, and supplies pertinent information to interested persons.

l. Record of Decision. A concise summary of the decision stating the Proposed Policy, including any revisions thereto, and the reasons for the Administrator's decision. It may include the principal objections to and support for the Proposed Policy, findings of fact, statements of applicable policy, major areas of controversy, and alternatives considered with their respective evaluations.

m. Responsible Official. The BPA employee designated by the Administrator as responsible for the development of a Proposed Policy.

3. Procedure for Establishing a Policy.

a. Decision to Formulate a Policy and Notice of Intent. When the Administrator determines the need for a new Policy, BPA shall publish in the FEDERAL REGISTER, or elsewhere if so decided by the Administrator, a Notice of its intent to formulate the Policy. The purpose of the Notice of Intent is to offer to interested persons the opportunity to make recommendations on the Policy to be developed.

Notice shall include the following: (1) the subject of the Proposed Policy; (2) a statement of the available information discussing the need for and the probable effect of the Policy; (3) an indication of the extent to which other existing policies might be affected by the development of a new Policy; (4) a request for written recommendations for BPA's use in formulating or revising the Policy, and the time limit for the receipt of such recommendations; and (5) the name, address, and telephone number of the BPA official who will receive them.

The Administrator or the designated Responsible Official may send a written announcement to persons who have previously expressed an interest in the general subject area of consideration, or to persons who, in the opinion of the Responsible Official, could reasonably be expected to have such an interest. The Responsible Official may also direct that an announcement be made in one or more general circulation newspapers in the BPA marketing area or through other effective means of publicity, as necessary or desirable.

b. Notice of Proposed Policy. After the period for receipt of recommendations stated in the Notice of Intent, BPA shall publish in the FEDERAL REGISTER, or elsewhere if so decided by the Administrator, a Notice of the Proposed Policy. The Notice shall include (1) the text of the Proposed Policy; (2) an indication of the probable extent to which other existing policies will be affected by the Proposed Policy; (3) the dates, times, and locations of scheduled Public Information Forums or Public Comment Forums; (4) information on procedures by which interested persons may participate in the Forums; (5) a request for written comments on the Policy and the time limit for the receipt of such comments; (6) the name, address, and telephone number of the BPA official(s) to contact for further information; and (7) any other information considered necessary by the Responsible Official.

Announcement may also be made by mail to those persons who have requested in writing that they receive written material on the Proposed Policy. Further announcement may also be made in one or more general circulation newspapers in the BPA marketing area or through other effective means of publicity, as necessary or desirable.

c. Combination of Notices. The Administrator or the Responsible Official may combine the above Notices.

d. Public Information Forum. Public Information Forums are optional. The Responsible Official will determine the need for and scope of such meetings based on factors such as an assessment of actual or expected public interest in the Policy, the complexity of the subject, or the anticipated degree of impact.

The purpose of a Public Information Forum is to present information about a Proposed Policy to persons interested in that Policy. BPA will consider the use of two types of meetings: (1) technical meetings for customers and other persons who would like the benefit of detailed staff briefings, and (2) more general meetings for other interested persons. One or more of both types of Public Information Forums may be scheduled based on the criteria stated above.

Meeting dates, times, and locations shall be announced in the FEDERAL REGISTER or elsewhere if so decided by the Administrator and may be announced in one or more general circulation newspapers in the BPA marketing area or through other effective means of publicity, as necessary or desirable. Meeting notices shall include a statement of the subject and purpose, dates, times, and places, for the forum. A 15-day notice will be provided whenever practicable.

The Responsible Official shall act as or appoint the Forum chairperson. A transcribed account may be kept of each Forum, and, if kept, the transcipt shall be part of the Official Record. Questions raised at the Forum may be responded to at the Forum or later, but not later than the publication of the final Policy, either by letter or as a part of the Official Record. If kept, transcripts of Public Information Forums shall be available for review at the Area or District office in the locality where the Forum is held. Copies of the transcipts of all transcribed Public Information Forums shall be available for review in the office of the Public Involvement Coordinator.

e. Public Comment Forum. One or more Public Comment Forums shall be scheduled on the Proposed Policy for the purpose of enabling interested persons to present their views on the Proposed Policy. The Responsible Official shall determine the number, dates, locations, and time of day of such Forums. Announcement of the Forums shall be published in the FEDERAL REGISTER or elsewhere, as the Administrator so directs, either in the Notice of Proposed Policy or in a separate Notice. The announcement shall include the name, subject, and purpose of the Policy; the dates, times, and places for the Forum, and an indication of the available information discussing the need for, in support of, or illustrating the probable effect of the Policy. The announcement shall also indicate the time period for receipt of comments, and the names, addresses, and telephone numbers of BPA officials from whom additional information can be obtained. The Notice may contain additional material considered necessary by the Responsible Official. Additional Notice may be given in one or more general circulation newspapers in the BPA marketing area or through other effective means of publicity, as necessary or desirable.

The Responsible Official shall act as or appoint a chairperson of the Forum. At the beginning of a Forum, the chairman shall explain the procedures governing the proceedings.

BPA shall offer interested persons the opportunity for oral presentation of views, data, and arguments. Persons wishing to speak should notify the BPA Public Involvement Coordinator or the Area or District Manager of the locality in which the Forum will be held at least 3 days before a Forum to permit preparation of a tentative schedule of participants. The chairperson may establish time limitations for oral presentations to assure that all interested persons who desire to speak shall have an opportunity to do so. The chairperson may require that interested persons with similar views, data, and arguments consolidate their presentations. Forum proceedings shall be transcribed. Transcripts of Public Comment Forums shall be available for review at the Area or District office in the locality where the forum is held. Copies of the transcripts of all Public Comment Forums shall be available for review in the office of the Public Involvement Coordinator.

f. Additional Opportunity for Comment. Opportunity for interested persons to participate in Policy formulation through submission of written data, views, or arguments shall be provided. Written comments on the Proposed Policy will be received from the date of publication of the Notice of Proposed Policy or combined Notice for the period stated in the Notice.

3. Evaluation of the Official Record. Following the comment period, the Responsible Official shall prepare an Evaluation of the Official Record, which shall be submitted to the Administrator.

4. Promulgation of the Policy. After the submission of the Evaluation of the Official Record, the Administrator shall decide whether to adopt, modify and adopt, or reject the Proposed Policy.

The decision shall be documented in a Record of Decision which shall be signed by the Administrator and which will be a part of the Official Record.

BPA shall publish, in the FEDERAL REGISTER or elsewhere if so decided by the Administrator, a Notice of a final Policy. The Policy shall become effective on the date of publication of the Notice unless otherwise specified.

5. Public Meeting Procedures. For policies other than those identified by BPA as major regional power policies, the Administrator may make use of a FEDERAL REGISTER Notice or other appropriate notice for announcement of a public meeting to obtain the views of interested persons. The Administrator may set the procedures for such meetings and the procedures may be made a part of the Notice.

6. Emergency Policy Implementation. The requirements of publication of Notice, comment period, opportunity for presentation of views, and promulgation of a Policy, as established by this procedure may be waived where those policies are (a) adopted on an interim basis, and (b) after a finding by the Administrator that strict compliance is likely to cause serious harm or injury to the public health, safety, or welfare, or for good cause shown, that such procedure is impractical, unnecessary, or contrary to the public interest. Such finding will be set out in detail in the interim policy. In the event that the procedure is waived, the requirements shall be satisfied within a reasonable period of time subsequent to the promulgation of the interim Policy by utilization of the procedure then in effect.

7. Relationship to National Environmental Policy Act (NEPA) Requirements. In those instances in which a Proposed Policy under consideration requires an environmental impact statement, the public participation procedure will be coordinated to the fullest extent possible with those required under NEPA. Joint Notices will be issued and meetings combined when possible.

May 6, 1981
Date

/s/ Earl E. Gjelde
EARL E. GJELDE
ACTING ADMINISTRATOR

APPENDIX O

Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

OFFICE OF THE ADMINISTRATOR

SEP 8 1982

In reply refer to: PGE

Mr. Daniel J. Evans, Chairman
Northwest Power Planning Council
700 SW. Taylor Street, Suite 200
Portland, Oregon 97205

Dear Dan:

I am concerned because there continues to be some confusion about Bonneville Power Administration's (BPA) actions concerning the implementation of the Council's Fish and Wildlife (F&W) Program. Some Council members and staff have indicated that BPA is using compliance with the National Environmental Policy Act (NEPA) as a roadblock to timely implementation of those components of the Program for which we will have responsibility. Please be assured that this simply is not the case. BPA has taken numerous steps to expedite the NEPA process and will continue to do everything that is reasonable to advance Federal NEPA compliance activities so that the objectives of the Council's F&W Program when it is finalized, and the Regional Act, can be achieved as soon as possible.

Compliance with NEPA is integrated into all Federal agency decisionmaking. The level of analysis and type of documentation necessary vary depending on the significance of the environmental impacts. The Council's F&W Program will contain a variety of proposals for Federal actions. Some proposals will probably be categorically excluded from NEPA review, some will likely be found to not have significant impacts after preparation of an environmental assessment, and others might require an environmental impact statement (EIS) before Federal decisions can be made.

With respect to the implementation of the water budget to promote survival of salmon and steelhead migrating to the ocean, BPA proposes immediately to incorporate in its river operations planning, on an interim basis, the amount of water requested by the Council in their final Program subject to concurrence by the U.S. Army Corps of Engineers (Corps) and the Bureau of Reclamation (Bureau). We believe that, in an instance such as this, the NEPA ground rules permit this sort of interim arrangement pending completion of whatever NEPA process is determined to be necessary. In anticipation of the F&W Program fish flow needs, BPA's 1982 rate case reflected revenues required as a result of shaping the firm energy load carrying capability (FELCC) of the Federal Columbia River Power System (FCRPS) among months in a fashion which was less than optimum for power system revenues in order to provide augmented flows for the 1983 downstream migration period. BPA's 1982 rate case also reflected providing the remaining spring 1983 fish flows by storing better than critical streamflows rather than selling nonfirm energy. It is quite likely that 1982-83 streamflows will be sufficient so that the operation anticipated in our 1982 rate case will provide spring 1983 fish flows comparable to the Council's water budget. For the spring 1984 fish flow period, however, BPA would plan, on a voluntary and interim basis with concurrence of the Corps and Bureau, to include the Council's water budget concept as a firm operating constraint. Based on figures supplied by the Council, this would result in derating the region's FELCC by about 550 average

MW. BPA will include the effects of this deration in its 1983 rate development process. Once the NEPA process is completed, then BPA, the Corps, and Bureau will be in the best economic, environmental, and legal position to agree to establish, on a permanent basis, a water budget for fish as a firm constraint for operating the FCRPS.

Over the last year or so, BPA has taken numerous actions to facilitate its ability to implement the Council's F&W Program expeditiously. These activities have been discussed several times with the Council's staff and with appropriate Federal and State agency representatives in meetings and letters (see attached summary). I would like, once again, to summarize these activities and assure you and the other Council members, and the Council's staff, that we are doing everything possible to insure that the NEPA documents required for implementation of those components of the Council's F&W Program for which BPA will be responsible will be completed as quickly as possible. These activities include:

1. Meeting with appropriate Federal and State agency representatives to discuss NEPA compliance strategies for implementation of the Council's F&W Program. These meetings covered a range of topics including (a) discussions on lead and cooperating agency responsibilities, (b) identification of NEPA contact persons, (c) evaluation of the possibility of adopting the Council's F&W Program development process as the "functional or substantial equivalent" of the Federal agency NEPA process, and (d) discussion of the advantages and disadvantages of a "program" versus a "component" approach for NEPA analysis.

2. Submitting to the Department of Energy for approval a recommendation that fish and wildlife research activities be categorically exempted from further NEPA review.

3. Developing an environmental information data base and impact retrieval system for the five Federal storage reservoirs (i.e., Libby, Hungry Horse, Dworshak, Grand Coulee, and Albeni Falls) that allows us to analyze the impacts of seasonal water level fluctuations. (An explanation of the system for non-BPA staff, including the Council's staff, is scheduled for September 28, 1982.) Recently, we requested agreement of Idaho Power Company for BPA to develop a comparable data base for Brownlee reservoir.

4. Conducting detailed hydroregulation studies of alternative flows for anadromous fish. These studies are necessary for NEPA analysis purposes and several staff-months of time will be saved by initiating these studies prior to Program adoption. In addition, the Corps is also conducting similar studies and we are coordinating our efforts with theirs.

5. Developing a pool of consultants who will be available by contract to promptly assist us in analyzing a variety of environmental concerns, including fish, wildlife, and recreation impacts that result from changes in river operations. By initiating this effort now, BPA will save several months of staff time that are normally required to develop such contracts.

6. Increasing environmental and fish and wildlife staffing levels in order to carry out our new responsibilities under the Regional Act. This includes the capability to prepare NEPA documents for the F&W Program.

BPA will continue to work with the Corps and Bureau on the water budget issue. With the availability of the Council's draft F&W Program, we anticipate (1) assigning lead agency responsibilities, (2) issuing a Notice of Intent to Prepare an EIS should one be necessary, (3) arranging scoping as soon as the final Program is adopted, and (4) developing an implementation plan and schedule for the final Program.

There is little doubt in my mind that the Council's F&W Program will be implemented as expeditiously as is feasible and to the fullest extent practicable, as far as BPA is concerned. It is unfortunate that BPA's concern for obedience to the legal requirements of NEPA—and I assure you that concern is both real and justified--should be misconstrued as footdragging on implementation of the Program. It isn't. The Program will be taken into account to the fullest extent practicable, and promptly. One thing seems clear to us. Failure of either BPA or other Federal participants to comply fully with the provisions of NEPA could needlessly and recklessly expose the Council's Program to the most serious risks. The worst tragedy, and an ironic one at that, would be to have the Council's Program hung up in time-consuming but avoidable litigation because, by taking some shortcut or other, BPA failed to obey the provisions of NEPA.

We have a big job ahead of us. It will take the cooperation of all concerned in order to successfully implement the Program. BPA staff and I look forward to working with you, the other Council members, and the Council's staff toward that end.

Sincerely,

Peter T. Johnson

Administrator

Enclosure

cc:
Honorable Max Baucus, Senator, U.S. Congress
Northwest Power Planning Council Members
Brig. General James van Loben Sels, U.S. Army Corps of Engineers
William Lloyd, Bureau of Reclamation
H. A. Larkins, National Marine Fisheries Service
Richard Myshak, U.S. Fish and Wildlife Service
Jerry Conley, Idaho Department of Fish and Game
James Flynn, Montana Department of Fish, Wildlife, and Parks
John Donaldson, Oregon Department of Fish and Wildlife
Frank Lockard, Washington Department of Game
Rolland Schmitten, Washington Department of Fisheries
Al Aubertin, Confederated Tribes of the Colville Reservation
Ronald Halfmoon, Confederated Tribes of the Umatilla Reservation
David Mathias, Kootenai Tribe of Idaho
Kelsey Edmo, Shoshone-Bannock Tribes of the Fort Hall Reservation
Delbert Frank, Sr., Confederated Tribes of the Warm Springs Reservation
Bernard LaSarte, Coeur d'Alene Tribe
Thomas Pablo, Confederated Salish and Kootenai Tribes of the Flathead Reservation
Alfred McCoy, Spokane Tribe of the Indians
Johnson Meninick, Confederated Tribes of the Yakima Indian Reservation
Jerry Millett, Duckwater-Shoshone Council
Glen Nenema, Kalispell Indian Community
Wilfred Scott, Nez Perce Tribe of Idaho
Jeff Sirmon, U.S. Forest Service
William Leavell, Bureau of Land Management
Edward Sheets, Executive Director, Northwest Power Planning Council
Curt Marshall, Staff, Northwest Power Planning Council

JPyrch:sp (1204K)

bcc:
Adm. Chron File - A
J. J. Jura - AD
J. Normandeau - AE
R. Eiguren - AL
O. W. Halvorson - APG
O. L. Schmidt - APG
M. B. Katz - AR
E. W. Sienkiewicz - P
J. L. Jones - P
J. W. McLennan - PG
J. B. Pyrch - PGE
W. Hibbard - PGE
J. R. Palensky - PJ
J. Kelly - PJ
G. Drais - PJ
G. Fuqua - PR
L. A. Dean - PS
A. R. Morrell - SJ
Official File - PGE

SUMMARY OF BPA'S COMMUNICATIONS+ WITH THE REGIONAL COUNCIL, THEIR STAFF, AND FEDERAL/STATE AGENCY REPRESENTATIVES IN WHICH NEPA COMPLIANCE FOR THE COUNCIL'S F&W PROGRAM WAS ADDRESSED

MEETINGS (including, where appropriate, dates of meeting notification letters (N-) and letters distributing meeting summaries (S-)

Dates	Agencies Represented	NEPA Issues Discussed
12/9/81 (N-12/3/81) (S-12/21/81)	BPA, Corps, Bureau, NMFS	1. Establishing a Consultation/Coordination Group 2. NEPA compliance for implementation of Council's F&W Program 3. Initiating environmental data gathering effort and hydroregulation studies
12/22/81 (N-12/8/81) (S-1/8/82)	Consultation & Coordination Group* (W. Gibson)	1. NEPA compliance for Program 2. Storage reservoir environmental data gathering effort 3. Hydroregulation studies on flow alternatives
1/15/82	BPA staff met with NMFS staff	1. Discussed F&W agencies' anadromous fish flow recommendations
3/15/82	BPA testimony before Council on F&W Recommendations	1. Summarized BPA NEPA activities for F&W Program Implementati
3/19/82	BPA/Corps	1. Discussed NEPA compliance
3/19/82	BPA/Council staff	1. Discussed F&W Program Implementation
3/22/82	BPA/NMFS staff	1. Discussed F&W Program Implementation
4/6/82 (N-none) (S-5/14/82)	BPA, Council Staff	1. NEPA compliance for implementation of Program
5/6/82 (N-4/22/82) (S-5/21/82)	Consultation & Coordination Group* (None)	1. NEPA compliance for Program 2. Hydroregulation studies 3. Storage reservoir environmental impact information gathering effort
5/17/82	BPA addressing Affiliated Tribes of Northwest at Indian's Water Rights Conference	1. Need for NEPA compliance re flow proposals
6/1/82 (N-5/21/82) (S-6/22/82)	Consultation & Coordination Group* (None)	1. Storage reservoir environmental information gathering effort 2. 1982/83 Operating Plan and relationship
6/14/82	BPA/Council staff	1. F&W Program implementation
6/23/82	BPA, Council Staff	1. NEPA compliance for implementation of Program
6/25/82 (N-6/17/82) (S-7/15/82)	Consultation & Coordination Group* (M. Podenski), BPA Customers	1. Discussed the 1982/83 operating plan for meeting DSI loads
7/23/82	BPA/USFS staff	1. Discussed NEPA compliance re F&W Program
8/3/82	BPA/Council staff	1. Discussed 1982-83 Operating Plan
8/26/82	BPA/Corps/FERC	1. Discussed F&W Program implementation and NEPA compliance
8/27/82 (N-8/5/82) (S-In prep.)	Consultation & Coordination Group* (Curt Marshall, M. Podenski), Other Agencies and Utilities	1. NEPA compliance for F&W Program 2. BPA efforts to expedite the NEPA process
9/7/82	BPA General Counsel's staff with attorneys from other Federal agencies (M. Podenski)	1. NEPA compliance for F&W Program

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+ - Does not include numerous telephone conversations between BPA staff and Council staff over the last year discussing a variety of F&W Program issues, including NEPA compliance.

* - See attached BPA Section 4(h)(11)(B) F&W Consultation Mailing List; Council staff are routinely invited.

LETTERS

Dates	To and From	NEPA Issues Addressed
2/26/82	to Consultation & Coord. Group* and other Agencies from J. Palensky	Cooperation in gathering environmental information on the five Federal storage reservoirs
4/30/82	to Larkins, NMFS from Administrator	NEPA compliance for implementation of Council's F&W Program
7/9/82	to D. Evans from Administrator	Responds to 6/16/82 letter, summarizes someof BPA's NEPA activities
8/4/82	to D. Evans from Administrator	Respunds to 7/7/82 letter, discusses BPA's NEPA activities and provides a matrix of Federal/State agency and Indian Tribe involvement
8/9/82	to D. Evans frun Administrator	Program related points
8/10/82	to Governors from Administrator	Requesting they designate one NEPA contact point for their State
8/23/82	to Wilkerson, Col. River Fisheries Council from Administrator	Fish flows for 1982-83 operating year/NEPA compliance on F&W Program flows
8/25/82	to McLennan from Jeff Sirmon, USFS	Recommends programmatic environmental impact statement on F&W Program
9/1/82	to C. Marshall from J. Palensky	Staffing for F&W and associated NEPA work

(1205K)

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ADDITIONAL STATEMENT

Remarks of
Peter T. Johnson
Administrator
Bonneville Power Administration

before the

Northwest Power Planning Council
Missoula, Montana
October 18, 1982

Thank you for this opportunity for the Bonneville Power Administration to comment on the Draft Fish and Wildlife Program of the Northwest Power Planning Council. We appreciate the magnitude of Council's task to prepare and adopt a program to protect, mitigate, and enhance fish and wildlife, and we appreciate, too, the narrow 1-year timeframe within which the Council is required to adopt its initial program.

As I have said before, we view ourselves and the Council as partners--with a common purpose and common objectives. The Council has the task of planning for acquisition of conservation and other resources, and for development of a program to protect and enhance fish and wildlife. BPA as a Federal agency, along with other Federal agencies, is given the primary responsibility for implementing the Council's program and plan. It is essential that we are clear on our respective roles as defined by law.

It is essential, too, that the planning and implementing roles, while distinct and separated, not become adverse to each other. To the degree they do, we will each fall short in our mutual goal of delivering effective and enduring results. In designing its Fish and Wildlife Program, it is important that the Council consider carefully and address the concerns registered by BPA and other program implementors who will thereby gain a vested interest in the program's success. It is also important that the Council be consulted by BPA at each decisive stage of the implementation process, and that the Council be able to assess progress and results.

I am confident that working together in a spirit of cooperation we will be able to achieve the goals of the Regional Act, and in particular, the absolutely crucial goal of protecting and enhancing fish and wildlife.

My task in appearing before you today is a delicate one. Some may interpret my comments as intransigence and foot-dragging. Nothing could be further from the truth. BPA stands committed to executing in the most expeditious and effective way we can the role defined for us in Section 4(h) of the Regional Act.

The Council's program will be judged in the crucible of implementation. That is why we and other implementing agencies must take our responsibilities most seriously.

In implementing the program, BPA's decisions and actions must be governed by our legal responsibility to see (1) that Federal funds are prudently spent for authorized purposes in accordance with Federal laws and regulations, (2) that expenditures are consistent with sound business principles, and (3) that costs are reasonable and commensurate with anticipated benefits.

The Regional Act requires ratepayers to pay for protection, mitigation, and enhancement to the extent that hydroelectric development has occurred at the expense of fish and wildlife. That is right and we accept it. But ratepayers, already strained by increasing power costs, should not be asked to pay for more than their fair share. Furthermore, every proposed expenditure should be tested for its cost-effectiveness and ability to produce measureable results. BPA will proceed to implement portions of the program to the extent they come to us adequately defined, evaluated, and assessed. BPA will review program elements and accompanying analysis against these tests. We will perform these reviews expeditiously in order that timely actions can be taken in rate cases, budget preparations, and other procedural steps incident to implementation. We appreciate that action is needed, and needed now.

Other program elements proposed by the Council can be accepted for further study and planning. These will not be viewed as ready for implementation, however, until they have been properly defined, evaluated, and assessed. It would be tragic if by rushing toward implementation, we do something which is transparently inequitable or not cost-effective, or if, on the other hand, we fail to undertake well-designed measures which will have durable long-range benefits. BPA, as a program implementor and the trustee of ratepayer funds which will pay for the programs, will be held accountable. We cannot duck this fact.

I have to be forthright with you. BPA has serious reservations about the collection of recommendations which together make up the draft program the Council has proposed. Consequently, we are concerned about our ability to implement them effectively. Section 4(h) of the Regional Act required the Council to formulate the Fish and Wildlife Program, giving deference to the recommendations of the region's fish and wildlife agencies and Indian tribes. As the Council's draft program recognizes by requesting studies prior to implementation of many measures, much more work needs to be done before many of the recommendations are sufficiently defined, evaluated, and assessed. This is neither a surprise nor a criticism since the Council has had but 1 year to address these issues. But the answer is not for the Council to interject itself into day-to-day program implementation as a way of appraising and perfecting program elements. The answer is for the implementing agencies to begin now to implement those measures all agree are ready and will achieve substantial early returns for the fish and wildlife resources, and at the same time for the Council working with Federal and State fish and wildlife agencies and Indian tribes to continue to develop and refine other program elements which can then be effectively implemented.

In the exercise of their Columbia River hydroelectric system responsibilities, the Bonneville Power Administration, the Corps of Engineers, the Bureau of Reclamation, and the Federal Energy Regulatory Commission are directed by the Act to protect, mitigate, and enhance fish and wildlife. It is these agencies of the Federal Government that must afford fish and wildlife equitable treatment with other system uses. In addition to the Council, it is the region's fish and wildlife agencies, appropriate Indian tribes, and generating utilities with whom the law obliges BPA and the other agencies to consult in carrying out these charges. Just as importantly, it is BPA to which the Act assigns the added function, above and beyond the hydro system responsibilities we share with the Corps, Bureau, and the Federal Energy Regulatory Commission, of funding measures for protection, mitigation, and enhancement. The Act confines the authority to take implementing actions to protect, mitigate, and enhance fish and wildlife to the Federal agencies; it does not invest such authority in the Council.

No less inescapable is the obligation BPA shares with these other Federal agencies to be guided by the Council's Fish and Wildlife Program. In our hydroelectric system responsibilities, we must take the program into account to the maximum extent practicable, and we must exercise our funding and other authorities in a manner consistent with the program. This we intend to do fully. But this will require the exercise of judgment, a responsibility the Administrator is compelled by law to bear. The Council must recognize that what actions BPA takes must be decided by the Administrator, balancing the Fish and Wildlife Program with the other considerations which Section 4(h) itself specifies, and with BPA's other legal obligations contained in the Regional Act and elsewhere.

There is one additional role for the Council that the Regional Act does not explicitly recognize, but which no one would contest. This is the role of leadership. As an institution firmly rooted in the State governments of the

Northwest's four States, yet one to which Federal agencies must listen, this Council is uniquely suited to the task of providing leadership in the effort we are all facing. BPA applauds the use of the Council's prestige and influence in the areas of ocean harvest and of water consumption, and we will look to the Council to define issues and to provide direction in other areas.

I wish to touch on several other points.

The first is that the Regional Act allows BPA to protect, mitigate, and enhance fish and wildlife only to the extent fish and wildlife are affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. There are many causes for the diminished fisheries on the Columbia River and its tributaries including development and operation of hydroelectric facilities, expansion of both commercial and sports ocean fishing, diversion of water for irrigation, construction and operation of reservoirs for flood control, and adverse impacts on spawning sites resulting from logging, road building, and other development activities. The law does not permit BPA to implement measures which compensate for adverse impacts which result from non-hydroelectric activities. Moreover, the law states that use of BPA funds shall be in addition to, and not in lieu of, other expenditures authorized or required from other entities.

We are also concerned about BPA's funding role. The BPA fund is not an inexhaustible cash register. It consists essentially of two components: (1) revenues from BPA power sales and transmission services, and (2) proceeds from the sale of bonds by BPA to the U.S. Treasury. These bonds must ultimately be repaid to the Treasury, with interest. In all cases, the ratepayer bears the burden of these costs.

Furthermore, BPA's ability to borrow from the Treasury for measures to protect, mitigate, and enhance fish and wildlife is limited. The Federal Columbia River Transmission System Act of 1974 gave BPA authority to borrow up to $1-1/4 billion from the Treasury to finance transmission construction. The Regional Act expanded use of this borrowing authority to provide financial assistance for conservation, renewable resources, and fish and wildlife. Of this $1-1/4 billion, a total of $910 million has already been borrowed, leaving only $340 million for which transmission, conservation, renewables, and fish and wildlife must compete. They are all important. The Regional Act also authorized BPA to borrow $1-1/4 billion for loans and grants for conservation and renewable resources. None of this second $1-1/4 billion borrowing authority is legally available for financial assistance for fish and wildlife.

Another point I wish to make regards BPA's "management" of Federal hydroelectric facilities on the Columbia River or its tributaries. I want to emphasize strongly that the U.S. Army Corps of Engineers and the U.S. Bureau of Reclamation have control of and primary responsibility for these projects. With respect to this responsibility, the Council has proposed a water budget to promote survival of salmon and steelhead migrating to the ocean. This proposal, as other measures to protect, mitigate and enhance fish and wildlife, must have measurable goals as well as identifiable cost and benefits. We must be able to explain what the water budget is intended to achieve as well as subsequently determine whether the water budget has succeeded as planned or needs review and modification.

BPA, as a Federal management agency, has committed, subject to the concurrence of the Corps and the Bureau, and pending NEPA review, to include the 1984 firm fish flows, on a voluntary and interim basis, as a firm power operating constraint in coordinated planning. Accordingly, we are placing the 1984 and 1985 water budgets in the 1983 rate case which will govern revenues for those years.

With respect to the NEPA process, BPA intends to work with the Corps and other Federal agencies to assure expeditious and adequate compliance. As I have indicated to you previously, much has already been done or is underway. But a well thought-out and coordinated process is crucial.

One thing seems clear. Ill-timed undertakings or failure of either BPA or other Federal participants to comply fully with the provisions of NEPA and other laws and regulations can expose the Council's program to serious risks. The worst tragedy, and an ironic one at that, would be to have the Council's program hung up in time-consuming but avoidable litigation because we or some other Federal agency tried to shortcut the NEPA process.

I want to conclude by once again pledging BPA's commitment to the Council's Fish and Wildlife Program. BPA has a new mandate to protect, mitigate and enhance fish and wildlife on the Columbia River and its tributaries. BPA, the Council, the other Federal agencies, and the fish and wildlife agencies and Indian tribes have been given a golden opportunity to help fish and wildlife. We can't afford to squander it.

BPA will be guided by the Council's Fish and Wildlife Program. I have instructed BPA staff to search aggressively for ways to implement appropriate program measures and to work diligently to overcome impediments to implementation. The oral testimony of BPA staff today and our written comments to be submitted by October 25, 1982, are intended to be constructive and to facilitate the implementation of the Council's program. It is my personal goal that in looking back on this important formative period we will be able to do so with justifiable satisfaction over the results which the Council and BPA, by working together, have been able to achieve.

I would now like to introduce key BPA managers--Janet McLennan, John Palensky, and Larry Dean--to present brief comments on the Council's Draft Fish and Wildlife Program.

Thank you.

For copies of the technical statements referenced above, please write to:

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REPORT SUBMITTED BY MARK M. REIS

A MODEL ELECTRIC POWER AND CONSERVATION PLAN
FOR THE PACIFIC NORTHWEST

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With Bill Arthur
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Northwest Conservation
Act Coalition

-- November 1982 --

Acknowledgments

The primary authors of the Model Plan were the Northwest Energy Project staff of the Natural Resources Defense Council, working in collaboration with numerous members of the Northwest Conservation Act Coalition. Bill Arthur, Scott Cummings, Jim Lazar, and Jay Luboff coordinated the Coalition's technical review of initial Model Plan drafts; they and their associates made numerous contributions. The project would never have been possible without Mark Reis, the Coalition's Executive Director, and Norma Jean Germond, its Chair, under whose leadership the organization has become a major force in Northwest energy policy. The herculean task of readying the manuscript fell to Janice Cornwell of NRDC, to whom all connected with the project owe a debt of gratitude. Financial support was provided in part by grants from the Harder Foundation, the Stanford Public Interest Law Foundation, and the Shalan Foundation.

Commentators on initial Model Plan drafts are too numerous to list in full here, but all their efforts were greatly appreciated. Among those who gave most generously of their time were Eric Redman, Randy Hardy (PNUCC), Maureen Carr (PNUCC), Terry Esvelt (BPA), Larry Palmiter (Ecotope), and Joel R. Hamilton (University of Idaho). Jack McMahon of the Idaho PUC stands out in particular as an individual whose contributions of time and expertise are reflected repeatedly in the pages that follow. None of these individuals, or their organizations, necessarily endorse our conclusions and recommendations.

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PREFACE

The Pacific Northwest Electric Power Planning and Conservation Act became law on December 5, 1980, signalling a new era in Northwest energy policy. Utilities saw in the "Regional Act" a solution to their decade-long search for planning certainty and a stable framework for resource development. Few of those involved in the implementation process would describe the current situation as either certain or stable. But all will admit that the Act created extraordinary new energy planning and development tools.

In part, those tools reflect the work and proposals of citizens groups during the legislative process. For example:

- Resource planning and forecasting is the responsibility of *a new independent agency*, the Northwest Power Planning Council;
- The primary criterion for planning is "cost-effectiveness" -- the Council is to select a mix of resources that *minimizes the economic and environmental costs* of meeting the Northwest's electrical energy needs;
- The Council shall give *priority to conservation and renewable energy measures*, and shall include in a 20-year regional energy plan enforceable "*model conservation standards*" applicable to, *e.g.*, (1) "new and existing structures," (2) "utility, customer and governmental conservation programs," and (3) "other consumer actions for achieving conservation."

- The Bonneville Power Administration, formerly a marketing agent for federal hydropower, has become a regional financing mechanism for cost-effective resources that are consistent with the Council's plan and the priorities of the Act.
- The fish and wildlife resources of the Columbia River system must be "preserved, mitigated and enhanced."
- Both the Council and Bonneville must maintain comprehensive programs "to insure widespread public participation in the formulation of regional power policies."

The Northwest Conservation Act Coalition was formed in 1981 to help realize these and related goals of the Act. Thirty-seven environmental, labor, ratepayer and other citizens groups decided that they should enter the regional energy debate together and put forward a comprehensive proposal for future power development. This "Model Electric Power and Conservation Plan for the Pacific Northwest" is that proposal. It outlines what the region can do to stabilize rate increases, preserve environmental quality, promote economic development, and make energy development and decisionmaking more responsive to local communities.

The Model Plan is offered as as challenge to utilities, industries, local and state governments, the Bonneville Power

Administration, and the Northwest Power Planning Council. We have described what the region can accomplish with the new authorities and tools of the Regional Act. The Model Plan is not a forecast of a "business as usual" future; it is a blueprint of what the future can and should be if the Act works. That prospect will be realized only if the region decides to choose its energy future, by taking control of events that have led the Northwest to the brink of economic disaster.

We emerge from the preparation of the Model Plan with a feeling of optimism and excitement about the decades ahead. Although we would be the last to suggest that the options we have identified will be uniformly cheap and trouble-free, we are convinced that they offer the best way out of a regional -- and national -- electrical energy dilemma.

I. Overview of the Model Plan: Conclusions and Recommendations

Preparation of the Model Plan was governed by seven principles in the by-laws of the Northwest Conservation Act Coalition:

> Specifically, the Coalition will advocate that the implementation of the Pacific Northwest Electric Power Planning and Conservation Act:
>
> - maximize the use of environmentally acceptable and cost-effective energy conservation and renewable resources;
> - avoid unnecessary thermal power development;

- optimize regional economic development through the promotion of labor-intensive energy resources and local financing;
- assure that the financial assistance and local development provisions of the Act are made available on an accelerated basis to those most in need of such provisions -- the low income and elderly;
- promote equitable and resource-conservative rate structures;
- protect the natural environment, including the fish and wildlife resources of the region;
- maximize the use and development of community-based resources and structures in implementation of the Act.

At its April 1982 meeting, the Coalition added an eighth principle to this list:

- Ensure the preservation of democratically controlled local public power systems in the Pacific Northwest (i.e., public utility districts, cooperatives, and municipals).

A theme that dominates the Model Plan is the importance of public participation in regional energy planning, with particular reference to the implementation of the Regional Act. The ultimate beneficiaries of the Model Plan can and must assume a leading role in its implementation; the Act expressly declares Congress's determination "to insure widespread public involvement in the formulation of regional power policies." True to that spirit, the Model Plan itself already has undergone extensive review and comment, and undoubtedly will continue to evolve as that process continues.

At the outset, it is important to emphasize that space and resource limitations preclude exploration in the Model Plan of all issues bearing on these goals and the regional planning agenda that they address. We have not, for example, set out to provide engineering or training manuals governing the Model Plan's conservation and renewable energy recommendations, although we give numerous references to such materials. Nor have we advanced a comprehensive proposal for the fish and wildlife program that forms a crucial part of the Regional Act's mandate, although we have tried to ensure that none of our recommendations is inconsistent with vigorous efforts to protect fish and wildlife populations.

This section summarizes the conclusions and recommendations that emerged from the Model Plan analysis. Following an overview of the Model Plan forecast in Section II, subsequent chapters will explain in greater detail the justification for each item listed below. Technical appendices, referenced throughout each of these chapters, give the details of the more complex calculations underlying particular conclusions.

1. Conservation and Direct-Application Renewable Resources

A. Cost-Effectiveness Criteria (pp. 33-72)

[1-1]: Before investing in any new coal or nuclear generation, the Northwest must exhaust all less expensive conservation and direct-application renewable energy options. Based on our estimates of the economic and quantifiable

environmental costs of coal and nuclear generation, this means that conservation measures and direct-application renewables (e.g., passive solar housing, solar water heating) should be pursued up to a cost threshold of 10.6 cents per kilowatt-hour (1982 dollars). That is, any measures with lower life-cycle economic and environmental costs must receive priority over a new coal or nuclear plant. This does not mean that the region must pay ten cents for every kilowatt-hour produced or saved by Model Plan measures; in nearly all cases, installation of these measures can be secured for substantially less. For example, BPA will be purchasing electricity savings under the Model Plan programs for existing and new residential buildings at an average cost of 3.8 cents/kWh and 1.6 cents/kWh, respectively.

[1-2]: It is not clear that, as BPA has contended recently, the region can confidently anticipate temporary electricity surpluses without new conservation and solar programs. Even a temporary surplus of the dimensions now projected by BPA, using a number of dubious assumptions, does not significantly affect the Model Plan's recommendations or detract from the urgency of implementing them.

B. Recommended Measures (pp. 73-352)

(1.) Residential Sector, Existing Buildings: (pp. 84-130)

[1-3]: Audits will be made available to all households, which will produce a list of cost-effective conservation and renewable energy measures appropriate for each dwelling. This

list will generally include most or all of the following measures (although in climates east of the Cascades still more extensive retrofits often may be recommended):

- high levels of ceiling, floor, wall, and water heater insulation (generally up to R-49, R-38, R-19, and R-19 respectively), where structurally feasible;
- leak-sealing to reduce air infiltration, accompanied by caulking and weatherstripping around doors and windows;
- low-flow showerheads and plumbing;
- substitution of high-efficiency heat pumps for resistance space heaters;
- substitution of solar units or high-efficiency heat pumps for resistance water heaters;
- reducing heat loss from windows through additional panes, thermal shutters, and surface treatments;
- air-to-air heat exchangers, where needed to ensure high indoor air quality;
- passive solar measures, such as greenhouse or sunspace additions and thermosiphon panels;
- high efficiency electric appliances; and
- high efficiency lights.

[1-4]: The Bonneville Power Administration will pay costs associated with the audit program and provide financing for installation of recommended measures. Where the life-cycle cost of measures is less than the cost-effectiveness threshold, BPA payments covering the full cost of the measures are justified and will maximize participation. At minimum, residents should receive a zero-interest loan covering part of the costs of the measures installed, and an outright payment

covering the remainder of those costs. Full reimbursement of all costs is, however, essential for low-income households, to ensure that they receive their fair share of benefits, and that the region can take advantage of the savings that efficiency improvements in their homes will produce.

(2.) Residential Sector, New Homes (pp. 131-52)

[1-5]: Building codes will be adopted that are designed to minimize the life-cycle cost of housing to occupants (purchase price plus utility bills). The proposed codes incorporate substantial flexibility in choice of design, and allow trade-offs between different measures as long as an overall target for energy consumption per square foot is realized. These "energy budgets" will vary by climate zone.

[1-6]: The Bonneville Power Administration will provide financing to override the increase in purchase prices for new homes that the code produces, and to compensate local governments for increased inspection costs. Incentives will also be available for achieving efficiencies in excess of those that the code requires.

[1-7]: Building codes and financial incentives for upgrading the construction of new housing shells will not discriminate among heating sources. The Model Plan does not aim to promote the use of electric heat in new housing, but neither does it view as an acceptable "conservation"

alternative the construction of inefficient houses that are heated with fossil fuels. Codes and incentives that are limited to "all-electric" buildings are more expensive to utilities and ratepayers than the nondiscriminatory alternatives we propose, because the "all-electric" requirement would encourage installations of electric heat.

(3.) Appliances (pp. 153-86):

[1-8]: Northwest states will agree on minimum efficiency requirements for new refrigerators, freezers, air conditioners, heat pumps, clothes dryers, water heaters, clothes washers, dishwashers, ranges, and ovens. BPA will initiate a rebate program to promote purchases of the highest efficiency appliances available to consumers, both before and after the standards become effective.

(4.) Commercial Sector, Existing Buildings (pp. 187-208):

[1-9]: A region-wide commercial audit program will be instituted. Audits will identify a "rapid-payback threshold" of savings achievable through measures that will pay for themselves, in lower electricity bills, in two years or less. Buildings that achieve savings in excess of that threshold will receive BPA payments, based on the value to the region of the additional savings.

[1-10]: Available as a back-up option, should participation in the incentive program fail to meet expectations, are mandatory lighting standards. These standards should be set at 1.2 watts per square foot; areas within individual buildings could vary in brightness as long as average demand met the standard.

(5.) Commercial Sector, New Buildings (pp. 209-219):

[1-11]: Building codes will be adopted that are designed to minimize the life-cycle costs of commercial buildings. The proposed codes incorporate substantial flexibility in choice of design, and allow trade-offs between different measures as long as an overall target for energy consumption per square foot is realized. Energy budgets will vary by climate zone and building type.

[1-12]: Compared with the residential sector, commercial sector efficiency standards probably will have less effect on initial construction costs; however, a formula is proposed for allotting some incentive payments to buildings that achieve minimum compliance. In addition, incentives will be created for exceeding the Model Plan's performance standards, and BPA will compensate local governments for increased inspection costs associated with the enforcement process.

(6.) Industrial Sector (pp. 250-330):

[1-13]: A regionwide industrial audit program will be instituted. Audits will identify a "rapid-payback" threshold of savings achievable through measures that will pay for themselves, in lower electricity bills, in two years or less. Industrial plants that achieve savings in excess of that threshold, attributable to efficiency improvements (as opposed to production cutbacks), will receive BPA payments based on the value to the region of the additional savings.

[1-14]: For the industries directly served by BPA, the Regional Act's "billing credit" mechanism will be used to help finance installation of cost-effective efficiency improvements, which will allow these electricity-intensive plants to maintain production at reduced demand levels.

[1-15]: As an additional inducement to efficiency improvements among the region's aluminum plants, BPA will allocate "interruptible" electricity supplies to maximize the production of aluminum. Higher-efficiency plants will have priority in allocations of this intermittently available power.

[1-16]: BPA will underwrite the design and development of cost-effective cogeneration facilities, which use waste heat from industrial processes to generate electricity.

(7.) Irrigation Sector (pp. 331-52):

[1-17]: Existing systems will be audited. Audits will identify a "rapid-payback" threshold of savings achievable through measures that will pay for themselves, in lower electricity bills, in two years or less. Irrigators who achieve savings in excess of that threshold, attributable to efficiency improvements (including reductions in water consumption), will receive BPA payments based on the value to the region of the additional savings.

[1-18]: BPA will create a system of financial incentives calculated to prevent growth in irrigated acreage that costs the region more, in lost hydropower and increased electricity requirements, than the value of the crops anticipated from the lands proposed for development.

2. Other Resources, Including Thermal Power Plants

A. Forecast of Needs (pp. 20-32)

[2-1]: Even under conservative assumptions, the Model Plan's recommended conservation, renewable energy, and cogeneration measures will permit cancellation of all new coal and nuclear plants now planned for construction within the region. In addition, the Hanford N-Reactor can be retired, and five plants now partially completed (Colstrip Unit 4, WPPSS Unit 1, WPPSS Unit 3, WPPSS Unit 4, WPPSS Unit 5) can be deferred indefinitely without creating a danger of electricity shortages.

B. Back-Up Options: Resources, Policies and Investments that are Preferable to New Coal and Nuclear Plants on Cost, Reliability and Flexibility Grounds (pp. 353-56)

[2-2]: Wind-generated electricity (the Model Plan develops an estimate of cost-effective, environmentally acceptable wind energy potential, which reaches 170 average Megawatts by 1990 and 984 average Megawatts by the year 2000).

[2-3]: Environmentally acceptable small-scale hydropower projects, installed at existing dams and irrigation facilities.

[2-4]: Geothermal district heating.

[2-5]: Photovoltaics.

[2-6]: Electricity surcharges or "curtailment purchases" (buybacks of electricity entitlements from utilities and large industrial customers) during times of threatened supply insufficiency.

3. Jobs and Energy Policy (pp. 356-60)

[3-1]: Compared to the manufacturing sector as a whole, the public utility sector requires almost six times as much investment per job created.

[3-2]: The Model Plan recommendations will produce more jobs per dollar invested in energy services than thermal power alternatives, while freeing up billions of dollars for use in sectors that are more job-intensive than power plant construction. For example, the Model Plan's residential building code alone will be saving the region almost $740

million per year by 2000 in reduced power costs, after accounting for expenses associated with code compliance and enforcement; these funds could underwrite at least 27,000 new manufacturing sector jobs.

[3-3]: Conservation, solar, and other jobs created by the Model Plan program will be dispersed throughout the region and concentrated in small business sectors; disruption of rural areas by transient "boom towns" (characteristic of power plant construction) will be avoided.

4. Equitable Distribution of Model Plan Benefits (pp. 360-64):

[4-1]: Low income households, already at the limits of their resources, cannot afford conservation measures whose cost is covered only partially by utility payments or immediate savings on utility bills.

[4-2]: Renters, who are disproportionately indigent, operate under an additional handicap. It is they -- not the building owners -- who are generally responsible for paying utility bills, but renters usually do not plan to stay long enough to justify installing long-term improvements.

[4-3]: The Model Plan proposes to solve those problems by granting low-income families full reimbursement for cost-effective conservation measures, and by following legislative precedents set by the states of Minnesota and Wisconsin, which require weatherization of rental housing units

after a specified date (Minnesota) or prior to sale (Wisconsin). Like all other homeowners, landlords would qualify for BPA payments to help meet the costs of efficiency improvements.

5. Rate Reform (pp. 367-77):

[5-1]: Where electricity rates do not reflect the high costs of new supplies, those who conserve electricity or install solar devices are prevented from realizing the benefits that they are conferring on ratepayers generally.

[5-2]: Distorted prices lead inevitably to an unnecessarily expensive electrical energy system, as increased demand spurred by deceptively low rates forces utilities to develop costly new sources of supply.

[5-3]: Rate reform alone will not remove all obstacles to cost-effective conservation and solar applications, but it will help encourage individuals and businesses to take responsibility for careful management of the region's electricity resources. Whenever possible, audits and incentives should be offered in advance of new price signals, to minimize hardship for those most vulnerable to increases in electricity costs.

[5-4]: In general, the Model Plan calls for redesign of rates, involving off-setting increases and decreases in particular rate schedules, to improve the reward system that utility bills create. Innovative retail rate forms that

produce savings in excess of those associated with Model Plan recommendations will qualify for BPA incentive payments.

[5-5]: Retail and wholesale electricity rates will be "inverted." An initial low-cost block of power, sufficient for meeting essential needs efficiently, will be available to all customers; additional purchases will be made from a more expensive block, set closer to the actual cost of new supplies.

[5-6]: Wholesale and retail demand charges will be eliminated; energy rates will be differentiated to reflect higher costs associated with providing service at certain seasons and times of day.

[5-7] At the wholesale level, "low density discounts" for utilities with high distribution costs will be restructured. Current policies have caused utilities qualifying for the discount to set retail rates and service charges that reward electricity waste, and do not ensure that the benefits of the discount are shared equitably among consumers.

[5-8]: Retail service charges will be eliminated or replaced with minimum monthly electricity bills for individual consumers.

[5-9]: Declining block rates, which reward increased consumption with reduced charges per kilowatt-hour, will be eliminated.

[5-10]: Interruptible rates for industrial customers at the retail level will be restructured to reflect the actual value of electricity "buybacks" during curtailment periods.

6. Environmental Protection (pp. 377-84)

[6-1]: The Model Plan assumes regulation of the Northwest's hydroelectric system to assist fish migration and comply with the Regional Act's mandate for "protection, mitigation and enhancement of fish and wildlife and related spawning grounds and habitat." Estimates of hydropower production have been reduced by 600 average megawatts through the 1980s, and 900 average megawatts thereafter, to accommodate these goals.

[6-2]: Proposals for new hydropower projects will be scrutinized strictly for environmental acceptability and compliance with the Regional Act's cost-effectiveness requirements.

[6-3]: Through indefinite deferral of new coal and nuclear generating facilities, the Model Plan avoids numerous adverse impacts to air, water, land and wildlife resources.

[6-4]: The Model Plan's residential conservation recommendations include a comprehensive program for detecting and eliminating hazardous indoor air quality conditions.

[6-5]: Overall, environmental impacts of the Model Plan's recommended measures are substantially less severe than those of the power plants that these measures will displace.

7. Community-Based Resources and Institutions (pp. 384-95)

[7-1]: The delivery systems for conservation and renewable energy applications involve numerous local entities outside the traditional utility sector.

[7-2]: To ensure widespread penetration of conservation and solar in the residential sector, the entire shelter delivery system must be "primed." Prerequisites, which apply also to the commercial and industrial sectors, include education, improved access to capital, and quality assurance programs.

[7-3]: Also important is a strengthened role for local government, both in policy formulation (e.g., building codes and development standards) and enforcement (where, among other things, training of inspectors assumes special importance). Local governments also possess many unexploited energy resource options, such as recovery of electricity through conservation in public facilities and promotion of solar energy development with solar access ordinances.

[7-4]: The Bonneville Power Administration will become a major conduit for funds to back conservation and renewables at the local level. BPA funds will reach the local level through (a) payments for participation in BPA conservation programs; (b) payments to local banks and lending institutions, enabling them to offer lower interest rates for loans used by individuals and businesses to finance conservation and solar

measures; (c) outright purchases of the "capability" of conservation measures, renewable energy resources, and cogeneration, through which BPA assumes the risk that the measures and resources may not perform as planned; and (d) "billing credits," or reductions in the BPA wholesale rates paid by utilities, in districts where conservation measures not covered by a BPA program are implemented, or where renewable resources are developed but not sold to BPA.

[7-5]: County energy planning will be initiated throughout the Northwest. County energy plans, to be developed with the broadest possible community involvement, will focus on present local energy use; conservation and renewable resource potentials; the jobs and capital flow impacts of alternative community-based solutions to energy problems, and the development of county-wide strategies to meet conservation and renewable energy goals.

8. Preservation of Democratically-Controlled Local Public Power Systems (p. 395)

[8-1]: The region's public power systems have an important role to play in the implementation of the Model Plan. That role includes, but is not limited to, assisting in the development of the broad-based county energy plans described in recommendation 7-5 above, and working with other local groups and institutions to ensure that community conservation and renewable energy goals are realized.

II. The Model Plan Forecast of Electricity Needs: Summary of Methodology and Results

The Model Plan includes an analysis of each major "end use" of electricity in the residential, commercial, industrial, and irrigation sectors. This approach affords the most direct means of projecting long-term trends in consumption, and of evaluating opportunities for increasing the efficiency with which electricity is used throughout the region. By developing a comprehensive inventory of electricity-consuming devices and buildings, an end-use analysis allows consideration of the effects of, *e.g.*, regulation and efficiency incentives, and roots the forecast firmly in the instrumentalities that, cumulatively, produce the Northwest's electricity demand. The most important assumptions in such a forecast involve policy choices that are within the control of the region's citizens, businesses, and institutions: *e.g.*, what performance standards should be set for new residential and commercial buildings? How many existing houses can we weatherize in five, ten, or twenty years? How rapidly can we upgrade efficiencies of lighting in existing commercial buildings? How much can the region's major industrial groups improve production efficiencies cost-effectively?

This methodology also helps ensure that efficiency improvements are not double-counted; this is a frequently cited problem with forecasts that first assume an overall system-wide growth rate (which may incorporate some conservation) and then reduce the resulting demand projections to account for the impact of conservation programs. Our forecasting approach varies in some significant ways from that generally used by utilities, for reasons that are described below. But in one important respect we do not differ from the utiities. The Model Plan is not a prescription for a "no growth" era of diminished expectations; our forecast incorporates the highest economic and population growth assumptions that are now being used by Northwest utility forecasters. The Model Plan is not an agenda for sacrifices, but a series of prescriptions for getting more service out of less electricity.

A. Utility Demand Forecasts

Until recently, Northwest electricity forecasting was widely regarded as the exclusive province of the Pacific Northwest Utilities Conference Committee (PNUCC), whose membership includes all the region's retail utilities. Over the last decade, however, PNUCC's annual forecasts have been unable either to project actual regional loads accurately or to produce a consistent yardstick of future needs. On the former point, as a recent Washington State study notes:

> [T]he difference between the February 15, 1969 [PNUCC] forecast for the 1979-80 water year energy load and the actual 1979-80 energy load is larger than the energy output of three 1200 megawatt nuclear power plants. The difference between the February 5, 1979 forecast for the

> 1979-80 water year energy load and the actual 1979-80 water year load is about the same as the output of a 1200 megawatt nuclear power plant.*

Projections of future loads have exhibited still greater variance. Between 1974 and 1981, PNUCC's annual estimates of regional loads in 1990 dropped seven consecutive times, by a total of more than 8700 average megawatts -- the reliable output of more than twelve 1200 megawatt nuclear plants operating at 60% capacity. Between 1980 and 1981 alone, the decline in projected 1990 loads equalled the reliable output of three such plants (2127 average megawatts.)** There are obvious grounds for questioning construction plans based on so volatile an index. These concerns increase when the underlying methodologies are investigated more closely.

Until the mid-1970s, utility forecasts in the Northwest were based on the assumption that the steady and high rates of demand growth observed in the past would continue indefinitely in the future. When the rate of growth decelerated markedly after 1975, utilities shifted to more complex "econometric forecasts," which nonetheless retain marked similarities to their more simplistic predecessors. Both techniques assume that certain relationships, observed in the past, will continue without significant change in the decades ahead. An econometric forecast pulls in numerous variables besides just the passage of time -- e.g., population, employment, personal income, electricity prices. But in determining how these variables interact, forecasters simply extend historic trends into the future.

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*Washington Energy Research Center, Final Report to the Washington State Legislature: Independent Review of Washington Public Power Supply System Nuclear Plants 4 and 5 76-78 (March 1982).

**Public Power Council, Power Planning Primer: An Introduction to Pacific Northwest Electric Power Planning Issues and the Role of Public Power 26 (1981).

Real world developments refute assumptions of constancy in the structural conditions that determined electricity demand in the past. Reactions to rapid escalation in power plant costs are only now beginning to be reflected in Northwest electricity consumption. Far more efficient appliances, now for the most part in the design stage, will be on the market soon. Efficiency standards for appliances, buildings, and possibly electric motors will exert increasing influence upon what was formerly an unregulated market attuned to a now-vanished era of cheap electricity. New financial incentives for conservation, renewable energy, and cogeneration investment are beginning to work. All these developments will have a marked effect on electricity consumption in the future, but since they had no effect in the past, an econometric forecast cannot predict them.

Even disregarding all these problems, uncertainties attack econometric forecasts from numerous angles. Only if technicians can predict trends in, for example, per capita income and energy costs, is there any hope that utility computer models can anticipate consumption in future decades. But the preconditions are daunting; they are as, if not more, difficult than predicting electricity consumption itself. Reasonable forecasts of 1995 per capita income differ by at least 50%; for energy prices, the margin widens to 450%.* The seemingly precise numbers in the annual utility forecasts mask an immense range in possible outcomes, which the authors have ignored or chosen not to display.

Moreover, such forecasts incorporate an underlying philosophy that we do not accept: increases in electrical energy demand are seen as inevitable developments, not unlike forces of nature, that somehow must be accommodated regardless of cost. Econometric analyses omit inquiries that are central to the design of the Model Plan. To what extent is electricity demand subject to management and planning within the region, and not merely an outgrowth of uncontrollable events? Would an inventory of structures and devices built to live within existing generating resources cost more than the less efficient inventory the utilities implicitly foresee plus the new power plants needed to serve it? The next subsection summarizes the Model Plan's answers to these and related questions about long-term regional electricity needs.

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*For personal income, the difference represents the range between PNUCC's estimate of a 2% annual real increase and a 1% annual real decline, which is more in line with recent trends. For electricity prices, the relevant spectrum is spanned by the assumption that thermal power cost escalation will cease altogether and the (more plausible) prediction that costs will continue to escalate at the 1970-1978 average rate of 10.5% per year.

B. Summary of the Model Plan Forecast

As noted earlier, the Model Plan evaluates each end use in terms of its total energy needs, after taking into account cost-effective improvements in efficiency and changes in population, employment, technology, appliance saturation, etc. The result is a forecast of what regional electrical energy requirements will be in 1985, 1990, 1995, 2000, and 2005 if the Model Plan is implemented.

We have not attempted to fix a single demand "point" for future years; such a procedure would both gloss over residual uncertainties and mask the array of policy choices that the Model Plan reveals. Accordingly, the forecast is expressed as a range, bounded by "high demand" and "low demand" estimates. The "high" scenario assumes somewhat smaller efficiency increases, less rapid "penetration" of conservation measures, and higher industrial growth than the "low" scenario. All measures included in the two scenarios are cost-effective.

Following the practice of the Pacific Northwest Utilities Conference Committee, we have expressed energy requirements in units of "average megawatts." An average megawatt is equivalent to the generation of 8766 megawatt-hours in a year.

Use of the average megawatt allows relatively simple comparisons between requirements ("loads") and central generating stations ("resources"). For example, a 1000-megawatt nuclear plant operating at the industry-average capacity factor of 55 percent will produce 550 average megawatts of electrical energy; the City of Seattle represents a total load of about 1000 average megawatts.

Regional electrical energy requirements under the Model Plan are shown by end-use sector in Table 1. Table 2 compares the totals to those predicted in three other recent studies: the official forecast of the Pacific Northwest Utilities Conference Committee (PNUCC); the Washington State University (WSU) forecast, which was commissioned by the state legislature in 1981; and the forecast published in July 1982 by the Bonneville Power Administration (BPA). The "high demand" scenario in the Model Plan projects electricity needs for 1990 that are 14%, 19%, and 33% below the lowest WSU estimate, the BPA estimate, and the PNUCC estimate, respectively. Comparable figures for the "low demand" scenario are 23%, 28%, and 40%. The discrepancies are attributable primarily to the Model Plan's greater emphasis on cost-effective ways to reduce electricity needs.*

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*Thus, for example, the BPA forecast does not include "savings which might be achieved through future conservation programs budgeted by BPA, by local and state governments, or by utilities"; also excluded are the effects of building and appliance efficiency "standards which may be proposed by the Northwest Power Planning Council, federal, state or local government, or by public and private utilities."

Table 3 compares energy requirements under the Model Plan's "high demand" forecast with energy resources available to the Northwest now and in the future. Generous margins of safety result, despite the following assumptions:

- the Hanford N-Reactor is retired immediately;
- every year of the forecast is part of a "critical water" period in which droughts drastically reduce hydropower availability;
- only three of the eight large-scale plants now under construction in the region are completed (Valmy Unit 2, Colstrip Unit 3, and WPPSS Unit 2);
- the two nuclear plants in operation during most of the forecast period, Trojan and WPPSS Unit 2, produce only 55% of their rated capacity (PNUCC assumes 71% and 75% capacity factors, respectively)
- Colstrip Unit 3 operates at only 54% of its rated capacity (PNUCC assumes a 73% capacity factor); and
- PNUCC's assumptions regarding the future energy contribution of the hydropower system are reduced to allow increased fish protection (with a net loss of 600 average megawatts in 1985 and 900 average megawatts from 1990-2005, as explained in section VIII below).
- Increases in irrigated acreage are assumed to reduce hydropower production by up to 200 average megawatts, as explained in section III.B.6.

In other words, under the Model Plan, the following thermal plants could be deferred indefinitely without creating a danger of electricity shortages:

1. Colstrip Unit 4 (Coal, Montana)
2. Creston Unit 1 (Coal, Washington)
3. Creston Unit 2 (Coal, Washington)
4. Creston Unit 3 (Coal, Washington)
5. Creston Unit 4 (Coal, Washington)
6. WPPSS Unit 1 (Nuclear, Washington)
7. WPPSS Unit 3 (Nuclear, Washington)
8. WPPSS Unit 4 (Nuclear, Washington)
9. WPPSS Unit 5 (Nuclear, Washington)
10. Pebble Springs Unit 1 (Nuclear, Oregon)
11. Pebble Springs Unit 2 (Nuclear, Oregon)
12. Skagit Unit 1 (Nuclear, Washington)
13. Skagit Unit 2 (Nuclear, Washington)

We in no way suggest that our forecast exhausts the potential for cost-effective conservation and solar measures; indeed, the reverse clearly is true. The Model Plan projects only the likely impact of widespread adoption of some -- not all -- readily available and well-understood measures. Without doubt, many options not discussed specifically in the Plan will prove cost-effective compared with new coal and nuclear plants, and will be entitled to priority over such plants under the

Regional Act. We had eliminated any justification for new thermal power plants long before we had "used up" the spectrum of preferable alternatives.

To illustrate, but not exhaust, the range of "unused" options, we present in section IV below a list of additional measures that (1) are preferable to thermal power plants on cost, reliability, and flexibility grounds and (2) provide an additional margin of safety in case demand growth outstrips expectations or the region must prematurely retire some of its existing coal, nuclear, or hydro plants.

Table 1: Future Electricity Needs Under High and Low Demand Scenarios

(Average Megawatts)

High Demand Scenario

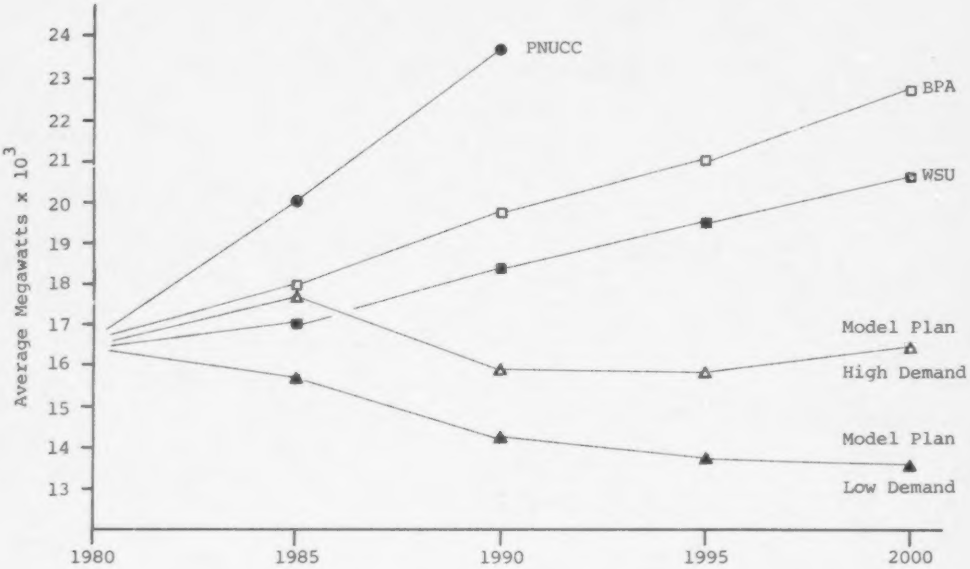
Sector	1980	1985	1990	1995	2000	2005
Residential	5486	5848	5392	5174	5193	5117
Commercial	2658	3093	2924	3060	3334	3545
Industrial[a]	6130	6413	5479	5570	5858	6201
Irrigation	724	736	718	711	698	685
Street Lighting	91	70	63	60	56	57
Other	191	191	191	191	191	191
Losses	1255	1203	1111	1113	1151	1184
TOTAL	16535	17554	15878	15879	16481	16980

Low Demand Scenario

Sector	1980	1985	1990	1995	2000	2005
Residential	5486	5360	4685	4329	4197	4046
Commercial	2658	3049	2790	2879	2983	3053
Industrial[a]	6130	5200	4757	4582	4496	4448
Irrigation	724	681	689	658	626	595
Street Lighting	91	70	63	60	56	57
Other	191	191	191	191	191	191
Losses	1255	1096	996	959	944	930
TOTAL	16535	15647	14171	13658	13493	13320

a. Firm energy sales only.

Table 2: Comparison of PNUCC, BPA, WSU, and Model Plan Forecasts



	PNUCC[a]	BPA[b]	WSU[c]	Model Plan: High Demand Scenario	Model Plan: Low Demand Scenario
1985	20,707	17,898	17,120	17,600	15,600
1990	23,797	19,714	18,410	15,900	14,200
1995	not available	21,101	19,510	15,900	13,700
2000	not available	22,781	20,490	16,500	13,500

a. From Pacific Northwest Utilities Conference Committee, Northwest Regional Forecast of Power Loads and Resources: July 1982-June 1993.

b. From Bonneville Power Administration, Forecasts of Electricity Consumption in the Pacific Northwest (July 1982).

c. From Washington Energy Research Center/Washington State University, Final Report to the Washington State Legislature, Independent Review of WNP-4 and 5 (1982) (Table A-15) (Projected loads, assuming termination of WPPSS Units 4 and 5, "moderate demand growth," and "moderate conservation and renewables").

Table 3: Comparison of Projected Loads and Resources Under the Model Plan

(In Average Megawatts)

(All resource estimates are taken from Pacific Northwest Utilities Conference Committee, Northwest Regional Forecast of Power Loads and Resources (1982).)

1985		1990		1995		2000		2005	
Loads	Resources	Loads	Resources	Loads	Resources	Loads	Resources	Loads	Resources
15600 to 17600	18100[a]	14200 to 15900	17000[b]	13700 to 15900	16800[b]	13500 to 16500	16700	13300 to 17000	17200[c]
Reserve in future years under the High Demand Scenario:									
500		1100		900		200		200	

a. Reflects resources available in a critical water(drought)year; assumes retirement of Hanford N-Reactor and operation of Valmy Unit 2, Colstrip Unit 3, and WPPSS Unit 2. Hydropower contributions have been reduced for fish protection and irrigation, as explained in Sections III.B.6 and VIII of the text.

b. Same assumptions as note a. except that contributions from combustion turbines are eliminated, and hydropower reductions are increased, as explained in Sections III.B.6 and VIII of the text.

c. Assumes introduction of 500 average MW from renewable resources from categories listed and described in Section IV of the text.

III. Maximizing the Use of Environmentally Acceptable and Cost-Effective Conservation and Renewable Resources.

In passing the Regional Act, Congress made clear its view that no new coal or nuclear power plants should be built in the Pacific Northwest unless all cost-effective conservation and renewable energy alternatives had been exhausted. The economic and environmental justifications for this decision are obvious. Nonetheless, the region's utilities are still attempting to secure construction permits for six new coal and nuclear ("thermal") plants in Washington alone,* while seeking to retain the option of completing two recently "terminated" plants, WPPSS Nuclear Units 4 and 5.

The Model Plan assembles an extensive -- although by no means exhaustive -- inventory of conservation and renewable energy measures that would cost less than, and eliminate the need for, new thermal plants. To make such comparisons, we first describe how costs should be calculated, given the requirements of the Regional Act and general considerations of public policy. We apply this methodology to determine the economic and environmental costs of additional coal and nuclear generation. Discussion then turns to the nature and potential of less expensive conservation and renewable energy alternatives.

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*Creston Units 1, 2, 3, and 4 (500 MW coal plants); Skagit/Hanford Units 1 and 2 (1275 MW nuclear plants).

A. The Cost-Effectiveness Threshold: Economic and Environmental Costs of New Coal and Nuclear Plants

1. The Statutory Criteria

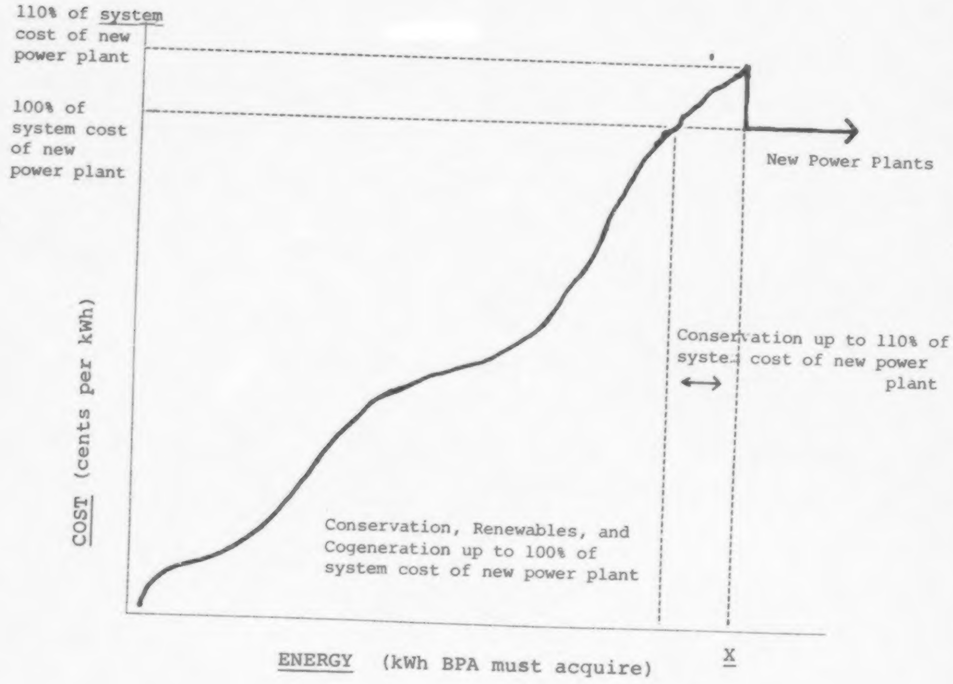
To ensure that the Northwest develops its energy resources efficiently, the Regional Act requires BPA and the Council to pursue only cost-effective options. "Cost-effectiveness" is defined in section 3(4)(A)(ii) by reference to "incremental system cost," which includes:

> all direct costs of a measure or resource over its effective life, including, if applicable, the cost of distribution and transmission to the consumer and, among other factors, waste disposal costs, end-of-cycle costs, and fuel costs (including projected increases) and such quantifiable environmental costs as ... are directly attributable to such measure or resource. § 3(4)(B), 16 U.S.C § 839a(4)(B).

Among equally cost-effective measures, priority must go "first, to conservation; second, to renewable resources; third, to [cogeneration]." § 4(e)(1), 16 U.S.C. § 839b(e)(1). In addition, conservation measures get a 10% bonus in cost calculations. § 3(4)(D), 16 U.S.C. § 839(a)(4)(D). Regardless of cost, no measure can be deemed "cost-effective" unless it is "reliable and available within the time it is needed." § 3(4)(A)(i), 16 U.S.C. § 839a(4)(A)(i). Figure III-1 below provides a way to visualize the planning process for resource acquisition that the Act contemplates.

The cost-effectiveness test is stringent. It means, for example, that BPA cannot acquire the capability of new nuclear or coal-fired power plants unless it has exhausted all higher

Figure III-1: The Planning Process for Resource Acquisition



priority measures whose cost is less than 100% (for renewables and cogeneration) or 110% (for conservation) of:

(1) cost per kilowatt-hour at the plant, including all costs over the plant lifetime, and specifically including waste disposal and decommissioning; plus

(2) distribution and transmission costs, including the cost of transmission losses; plus

(3) environmental costs.

Until its obligations to supply energy reach the level represented by the "x" on the lower right hand axis of Figure III-1, BPA can acquire no new thermal power plants.

The sections that follow develop a "cost-effectiveness threshold" attuned to these considerations. We rely extensively on cost data from the region's next planned coal plant, Creston Unit 1, and from its most recently commenced nuclear power plants, Washington Public Power Supply System (WPPSS) Units 4 and 5. These units clearly are candidates for acquisition by BPA. Our use of Creston and WPPSS cost data is predicated on the assumption that BPA and the Council wish at least temporarily to preserve these purchase options. As will become clear later in the Model Plan, we do not believe that such options can or should be exercised. However, a Creston or WPPSS-based cost-effectiveness threshold can only be shelved in favor of a lower number if BPA and the Council are prepared now definitively to reject acquisition of these units or comparable large-scale plants that are still further down the construction pipeline. That is a step we would support, but neither agency has taken it. In sum, under the Regional Act, it is impossible simultaneously (a) to refuse to attune cost-effectiveness analysis to the high costs of Creston or WPPSS Units 4 and 5 and (2) to leave open the possibility of a BPA acquisition of thoe or comparable plants.

This does not necessarily mean that the region must pay a Creston or WPPSS-sized price for every kilowatt-hour produced or saved by cheaper sources. As we shall see, in most cases installation of the Model Plan's recommended measures can be secured for substantially less. The point to reemphasize is that these plants cannot lawfully be acquired until all Model Plan measures that are as or less expensive have been exhausted. The "cost-effectiveness threshold" developed below serves to mark that line.

2. Comparing Costs and Benefits from Different Measures: General Considerations

This section describes a methodology for calculating economic costs per kilowatt-hour that can be applied to any resource -- conservation, renewable, or otherwise. The method is consistent with the statutory definition of cost-effectiveness quoted above. It automatically takes life-cycle cost into account, and corrects for inflation.

By contrast, methods currently used by utilities to calculate power plant costs are sometimes misleading, because they inadequately treat or omit some life-cycle costs and do not adjust properly for inflation. These flaws make comparison of different measures -- conservation, renewable resources, and thermal power plants -- difficult, if not impossible.

Subsection 1 describes the problem to be solved. One must accurately calculate costs and output in a way that permits comparison of measures with very different life-cycle cost and output patterns. Subsection 2 describes a straightforward methodology that meets this requirement, and corrects the distortions inherent in conventional utility practice.

Subsections 3 and 4 apply the methodology to the Creston project and WPPSS Units 4 and 5. These plants afford the best available benchmark for calculating the cost avoided by not building a new thermal plant. As noted above, all three have been proposed as candidates for Bonneville acquisition. Also, of the thermal plants currently planned for the Northwest, these are the potentially avoidable units on which construction is least advanced. Only a small fraction of their projected budgets has been committed, and indefinite deferral or termination is a plausible option.

Future power plants could also be used as the basis for cost-effectiveness comparisons. However, cost estimates for such plants are more speculative. Also, because of continuing rapid escalation, both construction and fuel costs probably would be even higher than those of our benchmark units. At historic annual cost escalation rates substantially in excess of inflation, a power plant that is several years behind Creston or WPPSS Units 4 and 5 in planned date of completion will be more expensive, even if construction proceeds more smoothly and efficiently than has been the case for the WPPSS facilities. Section 5 expands on these and related points. The analysis concludes with an examination of recent projections of temporary regional electricity surpluses, and their implications for investment decisions.

a. The Problem: Comparing Costs and Benefits for Different Measures

Conservation measures usually require large initial capital expenditures, followed by very low operation and maintenance outlays. For example, a comprehensive conservation effort for a single-family home -- insulation, leak-plugging, triple-glazed windows, a heat pump, a heat exchanger to enhance air quality, and so on -- is likely to cost thousands of dollars. But after that, the costs would be modest -- e.g., running the heat exchanger or replacing an occasional broken window.* The benefits of conservation begin immediately and are relatively constant over time, perhaps decreasing slightly as new leaks develop.

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*There may also be additional cost spikes as major equipment like the heat pump is replaced, but these do not alter the basic analysis.

For a nuclear plant, design and construction expenses will stretch over at least a decade. Several years of break-in and testing will follow,* after which the plant will operate at full power for perhaps three decades, with associated fuel, operating, and maintenance costs. Decommissioning will create a final cost spike.** Benefits, obviously, will be delayed until after construction is completed.

Coal plants have still another cost pattern. Initial construction will cost somewhat less and conclude a little sooner, although lead-time requirements will still affect costs significantly. Fuel costs during operation will be higher, and will escalate rapidly over time. There will be no decommissioning cost spike, however. The benefit pattern for coal will look much like that for nuclear.

The cost and benefit patterns for renewable resources will depend on the technology involved. Costs and benefits for wind or solar would resemble conservation costs and benefits (large initial capital outlays followed by low operating expenses; immediate benefits). A biomass plant would probably take several years to build, and would have significant operating costs. Its cost and benefit patterns would therefore look more like coal, but with a shorter construction lead-time.

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*See, e.g., Washington Public Power Supply System, Bond Statement for Nuclear Projects 4 and 5, at 35 (March 1, 1981) (showing projected energy generation beginning in 1987 and gradually increasing until it reaches a steady state level in 1990).

**As we will show in detail below, decommissioning costs cannot be assumed to be negligible if the cost calculation is performed properly.

The problem, then, is to calculate costs and benefits for these very different measures in a way that permits the direct comparisons that the Regional Act requires. The next section proposes a methodology for doing so.

b. The Solution: Reduce Costs and Benefits to Present Value

The most (and perhaps the only) sensible way to compare measures with different cost and benefit patterns is to derive a single "present value" for both costs and benefits anticipated from a particular measure. Such calculations are common in corporate and government planning; they require application of an accounting device called a "discount rate."

Nothing is more certain to glaze the eyes and lose the interest of most citizen participants in regional power planning than a discussion of discount rates. But the concept need not be reserved to experts, and a basic understanding of it is essential to the development of a sound energy future.

A discount rate is a device used to reduce streams of future costs and benefits to single, "present" values. Present values reflect the price people would be willing to pay now to be assured a series of future payments or benefits of a fixed amount. If you are willing, for example, to give up $1000 now in return for $1500 of uninflated dollars ten years from now, you are "discounting" the $1500 of future income at a certain rate. You are saying that you prefer a dollar today to a dollar in the future, even if inflation is ignored. This is only rational, since a dollar today generally can be invested at an interest rate higher than inflation to yield more than a dollar in the future. That is, spending this year can be deferred and invested to allow more spending next year.

A social discount rate is used to measure the extent to which society is willing to forego present consumption or other current benefits in order to obtain future benefits. Rather than arbitrarily assigning a value, we -- like most analysts -- look to "real" rates of return (net of inflation) on private investment. When persons or corporations loan or invest money, they are postponing use of that money in exchange for anticipated future benefits, which take the form of interest payments plus the ultimate return of the investment itself. Assuming that there is little or no risk associated with these payments, the extent to which interest rates exceed inflation rates affords a reasonable measure of the way society values future benefits or costs, compared with present benefits or costs. Put differently, risk-free future benefits or costs can be "discounted to present value" by subtracting an amount sufficient to compensate for society's time preference, as reflected in long-term interest rates on risk-free investments. This is done by applying a discount rate reflecting that time preference, as part of a calculation using a standard formula.*

Of course, few investments -- and no energy investments of which we are aware -- are truly "risk-free." Observed rates of return on most investments incorporate allowances both for the "time preference" discussed above and for risk: high-risk investments carry a higher rate of return than, say, short-term U.S. government securities. It is customary, however, to derive estimates of the social discount rate independently of risk, at least initially, and we will follow that practice here.

The obvious place to look for evidence on an appropriate "risk free" discount rate is the market in government bonds. As Appendix 1 explains at length, such bonds historically have yielded, on average, no more than 1% real (net of inflation)

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*The present value formula is
$PV = B/(1+d)^j$
where PV = present value
d = the discount rate
B = the value of net benefits in the future, and
j = the number of years until the future year in which the benefits occur.

If the benefits occur in a constant amount every year for the next n years, the formula can be shown to be equivalent to:
$PV = [(1 + d)^n - 1]/d(1 + d)^n]B$
where d = discount rate; and
n = number of years that the stream of costs or benefits will continue.

per year. This means, for purposes of the Model Plan's cost-effectiveness analyses, that risk-free costs and benefits anticipated a year from now must be reduced in value by 1%, after compensating for inflation, to yield a "present value." Costs and benefits for years still further in the future are reduced to present value using the formula identified above. Once a present value has been derived for both costs (in dollars) and benefits (in kilowatt-hours), the cost per kilowatt-hour is obtained by simple division.

c. Adjustments for Risk

If we used the method just described to evaluate energy alternatives, without further adjustment, we would be ignoring the relative risks associated with different approaches for meeting energy needs. Obviously, however, as between two measures with equal projected costs and benefits but substantially different performance and cost-related risks, the region should opt for the more secure alternative. Accordingly, we adjusted our cost-effectiveness calculations to reflect both the existence of, and variances in, risk.

We began by requiring investments in all energy technologies to earn a higher rate of return (2%) than the social discount rate (1%) would imply. This is equivalent, mathematically, to applying a 2% discount rate to projected streams of kilowatt-hours from each measure. This uniformly applied "low risk penalty" acknowledges that no energy investment, whether in conservation or generation, is risk free. The "low risk penalty" is based on data from the marketplace; it reflects the differential in rates of return between high-grade corporate bonds and essentially riskless government securities (see Appendix 1). An additional "moderate risk penalty" is applied to investments in relatively high-risk investments, such as coal-fired power plants, nuclear power plants, and wind machines. Here we required initial investments to earn a 3 1/2% real return (mathematically equivalent to discounting projected output at a 3 1/2% rate). Again, we looked to marketplace data -- this time to average returns on common stocks -- in deriving this figure. See Appendix 1 for our sources and calculations.

Some commentators have questioned our decision to assign a risk penalty to coal and nuclear plants, compared to conservation measures, and an explanation is in order here. Cost-related risks for the Model Plan's conservation measures are low; costs are mostly incurred at the outset, and thus are not subject to unexpected change over the lifetime of the measures. Savings are predicted through conservative methodologies that are described below in section III.B. The lifetimes of most conservation technologies are known, on average, as are repair and replacement schedules to the extent that any are applicable. Once in place, conservation technologies require little or no ongoing physical maintenance, and never involve the kind of complex financial management associated with the construction and operation of a major power plant. Conservation measures also benefit from diversity; no single measure is responsible for meeting an appreciable fraction of the region's needs, and there is no chance that hundreds of thousands of conservation devices could all fail simultaneously.

Coal and nuclear plants are significantly riskier, in part as a consequence of their large scale, complexity, and long lead-times. As the five WPPSS nuclear projects attest, construction costs over the five to ten year duration of on-site work may far outstrip initial projections. Fuel costs, which must be projected still further into the future in cost-effectiveness analyses, are extremely volatile. Coal fuel supplies can be -- and have been -- interrupted by strikes. Nuclear plants carry unique risks associated with a heavily regulated industry: they are subject to periodic and unpredictable shifts in regulatory requirements designed to safeguard public health and safety. Coal plants may find themselves in comparable straits if carbon dioxide and other pollution problems, discussed in Appendix 2, should worsen. Both coal and nuclear plants are subject to (1) unexpected temporary outages (e.g., Trojan, Boardman); (2) "dry holes" (e.g., Three Mile Island Unit 2); or (3) forced abandonment of partially completed large-scale units (e.g., WPPSS Units 4 and 5; Pebble Springs Units 1 and 2). There is no conceivable way that equivalent megawattages of conservation could simultaneously fail temporarily, shut down permanently, or be abandoned prior to completion despite the investment of hundreds of millions of dollars.

It is these generic considerations -- not a misplaced belief that individual conservation measures never fail to meet expectations -- that underlie the conclusion that coal and nuclear plants should be assigned a modest risk penalty in cost-effectiveness analyses, in comparison to conservation measures.

d. Resource Lifetimes

Compared with nuclear or coal-fired power plants, conservation measures often have relatively long life expectancies. Many measures associated with residential and commercial buildings -- e.g., insulation and glazing -- can be expected to last as long (50 to 100 years) as the buildings do. However, as a conservatism -- and because projections into the far future may seem unduly speculative -- we have set an arbitrary limit on the lifetime of all new resources, for cost-effectiveness purposes. That limit coincides with the construction term and expected useful life of a nuclear or coal plant -- roughly 40 years. A shorter term -- say, the 20-year period spanned by BPA's power sales contracts -- would distort cost and benefit calculations for power plants and conservation alike; in fact, power plants would suffer more, because they take so long to begin producing energy.

The net effect of this time limit is to understate the benefits attributable to most conservation measures. For example, if home insulation lasts 100 years, only 63% of the total present value of insulating now will be realized within 40 years (at a 2% discount rate).

Some conservation measures, on the other hand, have average lifetimes of less than 40 years. Examples include water-heater wraps, weather-stripping, and heat pumps. In evaluating 40-year costs and savings from such measures, it is necessary to make provision for replacement and/or periodic maintenance.

e. Environmental Costs

As we noted at the outset, cost-effectiveness analysis under the Regional Act must encompass "quantifiable environmental costs and benefits ... [that are] directly attributable to such measure or resource." § 3(4)(B), 16 U.S.C. § 839a(4)(B). This language supports the development of a methodology that puts a cost on all environmental impacts, subject only to the qualification that such impacts stem from the energy resource "directly."

BPA and the Regional Council should construe the "directly" proviso broadly, by assigning dollar values to all foreseeable environmental impacts of a technology; sound policy requires the quantification of as many environmental impacts as possible. Economists have long argued that "external" costs -- that is, costs not borne by producers or consumers -- lead society to make unwise investment decisions.* Only by quantifying these costs can society make fully informed decisions among power plants, renewable resources, and conservation. Costs that are not quantified are inevitably ignored, or addressed only in after-the-fact justifications of decisions reached by reference to costs that were quantified. Thus, the Act's declared goal of "providing environmental quality" would be advanced best by ensuring that environmental disrupters paid the true social cost of their activities. § 2(3)(C), 16 U.S.C. § 839(3)(C).

Of course, assigning dollar values to environmental impacts of different energy production technologies is riddled with difficulties. An environmental impact really describes a long chain of events -- a technology's inputs into the environment, the pathways these inputs follow, the stresses these inputs place on the environmental topography as they follow the pathways, the responses of the environment to these stresses, and the dollar cost of these responses. As John Holdren, director of the Energy and Resources Group at the University of California at Berkeley, has pointed out, the uncertainties and the unknowns increasingly dominate as an analyst proceeds from inputs to costs.* Thus, most environmental impact statements contain exact descriptions of a technology's inputs, speculation about the pathways and responses, and no analysis of the monetized costs. Any attempt to quantify the environmental impacts of various energy production technologies in a consistent, comprehensive, and reasonable way is ground-breaking. The analysis in Appendix 2 makes such an attempt with existing data. Since many of the necessary data for a truly comprehensive analysis have never been developed nationally -- let alone for the Pacific Northwest -- our analysis is incomplete. Nevertheless, the results give a rough notion of the magnitude of environmental costs implied by the best data now available.

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*See, e.g., P. Samuelson, Economics 476-78 (1976); J. P. Holdren, "Cross-Cutting Issues in Integrated Environmental Assessment of Energy Alternatives: Distribution of Costs and Benefits," ERG-WP-80-10 (October 1979) (monograph).

We should emphasize that our appreciation of the difficulty of pricing environmental costs is reinforced by having attempted it. The task compels the development of answers to some agonizing questions -- like the economic value of present and future human lives -- accompanied by the realization that a refusal to assign such a value is tantamount to a decision to assign a value of zero. There is also a continuing temptation to throw up one's hands at costs subject to great uncertainty -- until one realizes that here, too, not to decide is to decide. Of all the economic values that might be assigned to a range bounded by zero and several billion dollars, zero is the least appropriate result.

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*J. P. Holdren, "Environmental Impacts of Alternative Energy Technologies for California," in Lawrence Berkeley Labs, et al., Distributed Energy Systems in California's Future, HCP/P7405-03, Volume 2, 4-13 (May 1979) (monograph).

Appendix 2 analyzes some of the more significant generic environmental impacts of five energy options: coal-fired generation, nuclear generation, wind power, solar water heating, and household weatherization. Our calculations indicate that coal and nuclear plants both carry environmental costs of at least 20-30 mills per kilowatt-hour, to which must be added a premium to cover costs we have identified but not yet quantified. We estimate the environmental costs of the renewable energy and conservation options at between 0 and 1.2 mills per kilowatt-hour. Thus, any cost comparison of coal/nuclear and solar/conservation resources should levy a net environmental cost "surcharge" of 18-28 mills per kilowatt-hour upon the projected cost of output from the conventional power plants.

Underlying these conclusions are three important assumptions. First, we contend that low social discount rates are appropriate in assigning a present value to future environmental costs -- a one percent rate for property damages and a zero discount rate for a death or an injury.* Second, we show that few environmental impacts are currently reflected in the economic costs of energy resources, and that, as a result, most such impacts must be tallied as environmental costs. Third, we analyze earlier efforts to assign dollar value to a human life, and conclude that a value between $300,000 and $3 million is reasonable. From these figures, we infer that the cost appropriately attributed to a typical human injury is between $30,000 and $300,000.

We then analyze the principal impacts of coal-fired and nuclear power generation, including impacts that are rarely quantified (e.g., climate change and nuclear weapons proliferation). Our calculations indicate that the total environmental costs from these conventional technologies could run as high as 200 mills per kilowatt-hour for coal and 300 mills per kilowatt-hour for nuclear. We ultimately argue that point representations of these broad ranges should be at least 20 mills per kilowatt-hour. These cost estimates are substantially larger than the 0 to 1.2 mill per kilowatt-hour cost we calculate for wind power and solar heating. Finally, we argue that the environmental cost of a properly designed residential weatherization program is essentially zero.

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*Unlike dollars, human lives cannot be invested at a positive rate of interest. The zero discount rate simply means that we see no ethical or economic justification for valuing future lives less than present lives. See Appendix 2.

While we acknowledge that these numbers will be controversial, because of enormous uncertainties and unknowns, we strongly believe that our analysis is conservative -- that is, it makes assumptions least favorable to its case. Also, time and resource constraints have prevented us from addressing many prominent environmental impacts of centralized electricity generation technologies, such as water consumption, recreation losses, fish and wildlife mortality, aesthetic damage, and impacts from transmission and distribution facilities.* Thus, our estimates for coal and nuclear generation should be viewed as a lower limit, to which the costs of these other impacts must be added as estimates for them are developed. In the interim, these unquantified costs should be accorded positive weight and should -- at the very least -- be used to break "ties" in cost-effectiveness comparisons between coal/nuclear and solar/conservation resources.

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*Some of these impacts clearly impose substantial costs. For example, the Institute for Policy Research at the University of Wyoming has concluded that the aesthetic benefits from the control of sulfur dioxide pollution at the Grand Canyon alone may be worth almost $6 billion per year. William D. Schulze and David S. Brookshire, Methods Development for Environmental Control Benefits Assessment, Volume 7, at i (1980).

f. Transmission Costs and Line Losses

It is crucial, when comparing conservation with generating resources, to take adequate account of bulk transmission and line losses associated with delivery of power from generating resources to consumers. These are unavoidable generation costs that conservation avoids, yet they are frequently ignored in estimating costs per kilowatt-hour of energy from new plants.

Appendix 3 relies on utility sources for the conclusion that new coal and nuclear generation should be assigned transmission-related costs of about 8 mills per kWh and 8.5 mills per kWh, respectively. A separate accounting is needed for line losses; we have adopted BPA's estimate of a 7.5% system-wide average, although some analysts believe that the figure should be set substantially higher.* This estimate, and those for transmission costs, are incorporated in our cost projections for new coal and nuclear plants below.

3. The Cost of Power from the Creston Project

As Appendix 4 explains in detail, we conclude that the output from Creston would have to be priced at 10.6 cents per kilowatt-hour, in 1982 dollars, in order to recover its economic and environmental costs over a 40-year period (six years of which is occupied by construction). Since kilowatt-hours cannot be sold until the plant is operating, actual ("nominal") prices for this energy would start at an even higher level, and would go up each year to accommodate inflation. The table below gives a life-cycle cost breakdown; the discussion that follows summarizes some of our key assumptions.

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*See, e.g., Lindberg, "The Value of Conservation Resources During a Regional Power Surplus," p. 15 (July 28, 1982) (arguing that system losses should be set at 10-14%).

Cost Component	Unit Cost (levelized in 1982 dollars over lifetime of plant)
Capital	18.4 mills/kWh
Taxes	1.4 mills/kWh
Insurance & Reinvestment	3.4 mills/kWh
Fuel	43.5 mills/kWh*
Operations & Maintenance	5.9 mills/kWh
Transmission	8.0 mills/kWh
Line Losses	5.9 mills/kWh
Environmental Costs	20.0 mills/kWh
TOTAL	106.5 mills/kWh

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*This is the lower extreme of a range projected in Appendix 4.

Assumptions underlying these values are explained and documented in Appendix 4. They include:

(1) A 2% discount rate is used to reduce most anticipated costs and benefits to present value, as explained in section

A.2.c above. Capital investment is required to earn a 3.5% real rate of return, however. See section A.2.c above.

(2) Construction costs will escalate over the six-year period during which the plant is under construction at an annual rate of 3.7%, net of inflation.

(3) The plant is assumed to operate at a capacity factor of 54%, reflecting both historic trends and the most recent data on the performance of comparable units.

(4) Taxes will be assessed at a constant 1% of 1938 capital costs.

(5) Annual insurance and reinvestment will be .25% of the plant's capital cost.

(6) As projected by BPA, fuel costs will escalate at a minimum annual rate of 7.15% through 1985, 6.35% from 1985-1988, and at lower rates thereafter, levelling off at 2.8% in 1995.

(7) Operation and maintenance costs will begin at the levels calculated by the Creston sponsors, and will escalate at an annual rate of 1%, net of inflation.

4. The Cost of Power From WPPSS Units 4 and 5

WPPSS Units 4 and 5, if completed, would have to sell their output at 11.7 cents per kilowatt-hour, in 1982 dollars, in order to recoup their economic and environmental costs over a 40-year period (six years of which is occupied by construction). As with Creston, actual ("nominal") prices for this energy would start at an even higher level, and would go up each year to accommodate inflation. The table below gives a life-cycle cost breakdown; the discussion that follows summarizes some of our key assumptions. Our cost estimates draw heavily on budgets for Units 4 and 5 published by WPPSS before the institution of a construction moratorium in mid-1981.

Cost Component	Unit Cost (levelized in 1982 dollars over lifetime of plant)
Capital	44 mills/kWh
Fuel	21 mills/kWh
Operations & Maintenance	10 mills/kWh
Decommissioning	4 mills/kWh
Misc. (includes insurance, taxes)	3 mills/kWh
Transmission	8.5 mills/kWh
Line Losses	7 mills/kWh
Environmental Costs	20 mills/kWh
TOTAL	117.5 mills/kWh

Assumptions underlying these values are explained and documented in Appendix 5. They include:

(1) We decided to treat nuclear costs and benefits differently from those associated with coal plants, in one respect. All investments in WPPSS 4 & 5, not just capital costs, were required to earn a 3.5% real rate of return.

Such an adjustment was needed to reflect the way capital markets now distinguish between coal and nuclear plants; the latter must offer investors a higher rate of return, to compensate for greater perceived risks.

(2) We accept the WPPSS 1982 construction budget as an accurate projection of capital costs, with two exceptions. First, we have increased the contingency allowance, which was sharply and inexplicably reduced in the 1982 budget. Second, we have added costs associated with the construction delay, reflecting both escalation of future construction costs attributable to the delay and expenses associated with "mothballing" the plants.

(4) Taxes and insurance costs are based on the WPPSS estimates.

(5) Fuel costs will increase at the 3% annual rate (net of inflation) assumed by WPPSS. An allowance has been included for disposal of spent fuel.

(6) Operation and maintenance costs will increase at an annual rate of 2% real.

(7) Decommissioning costs will total 10% of the cost of building the plants.

5. Cost Escalation: Conservation Versus Power Plants in Future Years

The Model Plan's cost-effectiveness analyses compare conservation measures initiated in 1982 with power plants launched in 1982. But most of our proposed conservation programs will be implemented over a period of years, which in principle requires that separate cost comparisons be performed for each year that a conservation measure is installed. In this section, we show that it is extremely conservative to have all comparisons based on 1982 costs; conservation looks even more favorable in future years than it does today.

To perform a cost analysis for a future year, we would have to update all our cost data to that year. This revision would involve comparing 1984-vintage conservation with a 1984-vintage power plant -- that is, a power plant begun in 1984. Current trends allow us to make some predictions about how that comparison would look.

For power plants, we would expect the major components -- capital cost and fuel cost -- to continue escalating in cost. Capital costs for coal plants are increasing at approximately 3.7-6.5% real per year; nuclear capital cost escalation is somewhat more rapid.* Coal fuel costs are projected to increase at 2.5-7% real per year (see Appendix 4), with nuclear fuel escalation occurring at a somewhat slower rate. Other cost components for power plants are expected to remain constant or increase slowly (about 1% per year) in real terms. Thus, future vintages of power plants would cost on the order of 3 to 4% more per year in real terms. Contributing to these trends are pollution-control and safety-related expenses, which tend to increase as the power plant sector expands and new problems emerge (or existing problems, like carbon dioxide loading, acid rain, and waste disposal get worse). Also, as University of Tennessee economist William Schriver has argued:

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*See, e.g., Energy Daily, June 17, 1982, at p. 2 (reporting results of survey of coal and nuclear construction costs by University of Tennessee economist William Schriver); and sources cited in Appendices 4 and 5.

> these jobs are so large that it seems there is some breakdown in the organization of work on the sites ... the size and complexity of the jobs are such that standard construction management techniques just don't seem to be able to accommodate the enormity of the task.*

In contrast, conservation costs are likely to stay constant or decline in real terms. The theoretical argument for near-constancy is that conservation products are sufficiently similar to the total mix underlying the economy as a whole to prevent either real increases or decreases (net of inflation), on average. The empirical argument is presented in Table I, which lists the results of surveys by the National Association of Homebuilders of the cost of conservation measures in new homes, conducted in 1977 and 1980. Since both surveys were designed by the same organization, the possibility of misleading results attributable to differing methodologies is minimized.

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*Id.

As shown in Table I, energy-intensive materials such as fiberglas insulation (represented by the upper end of the range for 1980 ceiling insulation costs) went up 10-30%, while multi-pane windows were 20-25% cheaper in 1980. Wall insulation costs dropped 20-45%. Overall, there were more cost decreases than increases. Costs of any particular measure were volatile, but *packages* of measures generally decreased in price.

Thus, the average cost of conservation measures can be expected, conservatively, to remain constant after compensating for inflation. Indeed, introduction of new measures and design improvements can be expected to *cut* costs in some areas. For example, the use of infrared reflective films on windows may duplicate the performance of triple-pane glazing at lower cost. Less expensive ways of designing high-efficiency heat pumps or other appliances may be found. For example, a high-efficiency 1980 Arthur B. Little refrigerator prototype achieved almost all the savings of a 1977 design at substantially lower cost.*

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*See Arthur D. Little, Inc., *Study of Energy-Saving Options for Refrigerators and Water Heaters, Volume I -- Refrigerators* (1977); W. David Lee, *Development of a High-Efficiency Automatic Defrosting Refrigerator/Freezer: Phase I -- Design and Development* (1980) (study by Arthur D. Little, Inc. for Oak Ridge National Laboratory; ORNL/Sub-7255/2).

TABLE 1

Comparisons of Insulation and Glazing Costs
(per square foot)

Measure	1977 Cost		1980 Cost	% change, in real dollars
	nominal $	1980 $		
Ceiling Insulation				
add R11	.12	.153	.1545-.185	+ 0.9 - 21
add R8	.08	.102	.11-.132	+ 7.8 - 29
Wall Insulation				
R11 - R19	.216	.275	.155	- 44
R19 - R25	.264	.337	.276	- 18
Windows				
single-double	2.16	2.75	2.15	- 22
double-triple	2.42	3.09	2.39	- 23
Floors				
R11 - R19	.086	.110	.121	+ 10.3

SOURCES: NAHB Research Foundation, Inc., "Selected Cost Data on Residential Construction for the National Bureau of Standards" (December 1977); "Installed Costs of Energy Conservation Measures for AIA Research Corporation (June 1980).

Given these trends, the tradeoff between conservation and thermal power is likely to become even more favorable in future years. Our decision to evaluate all costs as of 1982 is a conservatism that tends to understate the relative advantages of conservation.

6. Summary of Results

The results, although regrettably not the details, of these cost-effectiveness analyses can be stated concisely: renewable energy and cogeneration measures are "cost-effective," compared to new coal and nuclear plants, if they deliver electricity at a combined economic and environmental cost of 10.6 cents per kilowatt-hour or less in 1982 dollars. Conservation measures are bounded by a cost-effectiveness ceiling that is 10% higher, reflecting their statutory preference. Regional Act § 3(4)(D), 16 U.S.C. § 839a(4)(D). These figures represent life-cycle costs, as the Regional Act requires. The "cost-effectiveness threshold" of 10.6 cents per kilowatt-hour conservatively projects the combined generation, transmission, and quantifiable environmental costs of a coal plant slated for construction beginning in 1982 or later; as shown above, a nuclear plant would be even more expensive. All of the measures discussed in the next section meet this standard, and nearly all surpass it by a substantial margin.

Given these cost advantages, moreover, it will not be necessary for the region to pay ten cents per kilowatt-hour, or anything close to that figure, to secure the cumulative benefits of the Model Plan recommendations. For example, the average cost of savings from the Model Plan's programs for new and existing residential buildings will be about 2¢/kWh and

3.8¢/kWh, respectively, in 1982 dollars. The estimates include maintenance, inspection, and overhead costs. These and other payment issues will be discussed below; what bears re-emphasis here is that the Model Plan's "cost-effectiveness threshold" does not fix a uniform level of payments per kilowatt-hour for Model Plan measures; rather, it functions to identify the point beyond which individual measures are no longer cheaper than the coal and nuclear plants they are working to displace.

7. Implications of a Temporary Regional Electricity Surplus for the Model Plan's Cost-Effectiveness Analyses and Recommendations

a. Does the Northwest Face Near-Term Electricity Surpluses?

The term "surplus" is a very recent addition to the debate over Northwest energy policy. BPA now argues, in sharp contrast with its posture over the last fifteen years, that the Northwest will have electricity in excess of its needs for the rest of this decade, even if (1) droughts reduce hydropower availability to "critical water levels" and (2) no new conservation or generation projects are initiated. In sum, for the near term, BPA views the Northwest's primary problem not as how to meet pressing electricity needs, but how to unload electricity that no one in the region will want to buy. Some proponents of this argument seek to defer or abandon new investment in conservation and solar until the projected surpluses are exhausted. This proposal is misconceived, even assuming that the region confidently can plan for temporary surpluses. Before discussing that point further, it is necessary to confront squarely the merits of the underlying assumption.

Despite all the recent emphasis on near-term surpluses, no regional forecast in fact documents their existence under a "no action" scenario. PNUCC's official forecast still shows substantial deficits even if all existing and planned thermal plants are built;* a recent Washington State forecast refutes the need for new plants, but does not dispute the importance of near-term development of conservation and renewable energy resources;** the only BPA forecast contains no load/resource comparison whatsoever.*** Projections of "no action" surpluses are obtained by comparing BPA's load forecast with PNUCC's projections of resource availability, and making what we consider inadequate estimates of the impacts of an adequate fish and wildlife protection program on hydropower generation. In addition to the fish and wildlife issue, the uncritical adoption of PNUCC's resource assumptions is questionable. The PNUCC forecast contends, without any published justification, that all new and existing large-scale Northwest coal and nuclear plants will surpass nation-wide average performance levels by large margins in every year of operation. Reducing PNUCC's assumed capacity factors to more realistic values (55% for nuclear, 54% for coal) yields the following reductions in projected energy production:*

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*Pacific Northwest Utilities Conference Committee, Northwest Regional Forecast of Power Loads and Resources (1982).

**Washington Energy Research Center/Washington State University, Final Report to the Washington State Legislature: Independent Review of WNP-4 and 5 (1982).

***Bonneville Power Administration, Forecast of Electricity Consumption in the Pacific Northwest (July 1982).

1985-1986:	533 average MW
1986-1987:	611 average MW
1987-1988:	772 average MW
1988-1989:	779 average MW

Even these substantial adjustments will, of course, prove inadequate if any of the six coal and nuclear plants still under construction in the region** cannot meet current schedules. Three of these plants are part of the Washington Public Power Supply System, and there is a real possibility that lawsuits and financing problems outside the control of any Northwest decision-maker will prevent their completion.

The final reason for questioning BPA's projected surplus goes to the methodology of the BPA load forecast itself. As the Natural Resources Defense Council has demonstrated in extensive comments, the BPA forecast assumes substantial "price-induced" conservation that in fact is unlikely to emerge from rate increases alone (although the forecast does not come close to exhausting all cost-effective conservation options).* In other words, BPA is incorrect when it argues that its forecast incorporates no new regulatory and incentive programs to promote conservation and solar; some such programs are implicitly included in the BPA demand projections.

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*Based on PNUCC, Northwest Regional Forecast of Power Loads and Resources, at I-17, III-2 (1982). Capacity factors are adjusted downward for Trojan, Boardman, Colstrip Units 3 and 4, and WPPSS Units 1, 2, and 3, in the years when these resources first appear in the forecast and in subsequent years. See Appendices 4 and 5 for derivation of these capacity factors.

**Valmy Unit 2, Colstrip Units 3 and 4, and WPPSS Units 1, 2, and 3.

In sum, there are persuasive reasons for concluding that BPA has overestimated temporary surpluses that would result if new conservation and solar efforts were deferred. Nonetheless, the discussion below assumes that all the factors militating against a temporary "no-action surplus" are somehow dismissed or offset.

b. The Value of Conservation that Begins During a Surplus Period

A least-cost electricity planning strategy calls for the use of conservation and solar measures whenever their life-cycle cost is lower than that of generation alternatives. But what if the Northwest needs no new electricity supplies for several years? Clearly, energy conserved or produced during this surplus period has lower value than if deficits loomed in the immediate future. The surplus power is far from worthless, however -- its value is equal to the costs of operating coal plants that can be shut down temporarily, or the sales price obtainable from selling the surplus out-of-region, whichever is larger.

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*Natural Resources Defense Council, Comments on BPA's Draft Regional Forecast of Electricity Consumption in the Pacific Northwest (June 2, 1982).

In addition, most conservation measures are much longer-lived than BPA's projected surpluses. New buildings will last 50-100 years, with many of their conservation features (e.g., windows, orientation, ductwork) lasting for essentially the full lifetime of the building. Investing in these measures now avoids the need to construct new generation resources in the future to avert projected deficits, to which inefficient buildings would contribute. However, avoiding the need for a power plant in the future is arguably less valuable than avoiding one that is needed immediately,* so the value of the conservation is somewhat less. The tradeoff can be quantified by applying the concept of discounted present value, as illustrated below.

Assume the avoided power plant would be needed eight years from the present, and would cost a levelized 106 mills per kWh in 1982 dollars (see section III.A.6 above). Assume that the conservation measure lasts 40 years, beginning in

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*This is not always true, as is shown below.

1982. The conservation savings must be separated into a "surplus stream" (covering the first eight years) and a "displacement stream" (covering the last thirty-two years). The present value of the "displacement stream", which avoids the power plant, is given by the future worth eight years from now of 32 years of power plant output divided by $(1 + d)^8$, where d is the discount rate. Numerically, using a 2% real discount rate, the present worth factor for 32 years' annuity is 23.47 years, so the 106 mills for 32 years is worth 2488 mills eight years from now, or 2123 mills today.

The "surplus stream's" value is set by reference to running costs of Northwest thermal plants or rates for sales to California, whichever yields a higher value. The present value of a surplus stream valued at 30 mills/kWh would be given by the present worth factor for 8 years' annuity (7.33 years) times 30 mills, or 220 mills. Thirty mills is a conservative estimate of California's willingness to pay for firm Northwest energy; Portland General Electric is now getting about 40 mills/kWh from Pacific Gas and Electric.*

Total present value of the conservation savings, including both streams, is 2123 + 220 = 2343 mills for a kWh/year for 40 years. This number can be levelized over a 40-year period by dividing by the present-worth factor for 40 years' annuity (27.36 years); the result is 85.6 mills/kWh. If all the numerical assumptions outlined above are accepted, this is the maximum price per kilowatt-hour that the region should be prepared to pay at the start of an eight-year surplus period for a reliable 40-year stream of conservation savings. This is an intuitively correct answer: it is less than the present worth of displacing a 40-year stream of power plant output, because the thermal plant is only avoided for 32 years, but it is not much less because 32 years is a long time at a low real discount rate and because the avoided cost during the years of surplus is substantially greater than zero. For shorter-lived conservation measures, of course, the value of savings is lower. Consider a twelve-year conservation measure. The methodology described above, applied to eight years of "surplus stream" savings followed by four years of "displacement stream" savings, yields a levelized value of 53.4 mills/kWh. This is much closer to the 30 mills surplus value than the 106 mills long-run avoided cost, because the resource is producing mostly short-term ("surplus stream") power.

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*See Northwest Conservation Act Report, at 3 (June 25, 1982). For a detailed analysis of surplus sales to California, including proposed mechanisms for investment by California utilities in Northwest conservation, see Natural Resources Defense Council, "Proposals for Long-Term Firm Power Transfers from the Pacific Northwest to California, Based on Conservation Investments and Intertie Expansions" (August 27, 1982).

The formulation presented above is very conservative, since it essentially ignores any cost escalation incurred by delaying the construction and operation date of the power plant. In fact, a power plant that goes on-line eight years from now is likely to cost more both to build and to operate, even in real dollars, than one commencing operations in the immediate future. As explained in section III.A.5 above, the escalation rates are likely to exceed the discount rate, so the present value of costs from a delayed power plant may exceed that of a currently-needed plant. Recall that power plant costs escalated at annual rates of 6-10% real over the last decade, and that BPA projects 6% real annual escalation in coal fuel costs throughout the 1980s. Arguably, then, the existence of a short-run surplus increases the cost of an avoided power plant. Those skeptical about the use of low real discount rates should still find the results of our analysis reasonable, unless they believe that application of the higher discount rate they deem appropriate would not be offset by escalation of the power plant costs that are being discounted.

c. Policy Implications

As the previous section indicates, a temporary surplus reduces the cost-effectiveness threshold somewhat, although the figure remains at a substantial level. Readjusting the threshold in this way has virtually no effect on the Model Plan's proposals for residential sector incentive programs (described in section III.B.2 below). Nearly all recommended residential measures beat the revised threshold by a comfortable margin; the average cost of savings under the Model

Plan program is substantially less than the 8.6 cents per kilowatt-hour figure derived above. Model Plan proposals for incentive programs in the commercial, industrial, and agricultural sectors (described in sections III.B.3, 5, & 6 below) will be affected somewhat by the appearance of a temporary surplus, since they are set by reference to the value of savings to the region. Given the numerous conservatisms underlying our projections of achievable savings in the initial years of these programs, we do not expect modest reductions in initial incentive payments to affect the forecast.

We reemphasize, however, that the Regional Council should not permit BPA to use surplus projections in calculating incentive payments until the Council has considered all the factors reviewed above, and has satisfied itself independently that temporary "no action" surpluses are probable.

There is an irony here that should not be overlooked: many who oppose BPA incentives for conservation and solar during a temporary surplus are prepared to commit the region immediately to multi-million dollar payments for new coal and nuclear plants, on the theory that the power plants -- unlike the alternatives -- won't start producing power until the surplus is exhausted! The Model Plan rejects this specious logic, and seeks instead to channel these proposed power plant investments into more productive channels.

B. Conservation and Solar Measures

The Model Plan assembles packages of cost-effective conservation and renewable energy measures for "retrofitting" existing homes, commercial buildings, industrial processes, and irrigation systems. It also identifies ways of ensuring that such measures are included in new buildings, processes, and systems. This section gives details on the Plan's recommendations for each major category of electricity use.

These recommendations focus on buildings and equipment, because efficiency improvements in "hardware" are capable of producing reliable energy savings or production at no sacrifice in comfort or convenience. Behavioral changes are and should remain the choices of each individual. However, innovative education programs, which increase people's understanding of the energy-related impacts of their activities, show promise of inducing substantial amounts of low-cost conservation and increasing the energy savings realized from Model Plan measures. Many consumers do not understand the distribution of energy consumption within their homes; one unfortunate but frequent result is sacrifices undertaken for conservation purposes that produce minimal or no savings.1/ Programs that increase the energy management skills of Northwest citizens should be implemented on an experimental basis, and the resulting benefits should be evaluated in field-test settings. Since the Model Plan does not assume energy savings from such programs, the Plan's assumptions regarding future energy needs are conservatively high.

1. The Need for Regulatory and Incentive Programs

a. Breakdowns in the "Free Market"

Unfortunately, the Model Plan's cost advantages do not guarantee it a smooth path. Although Model Plan measures are cheaper than power plants, the "free market" will not automatically select them first. Regulatory and incentive programs, described in subsequent sections, are crucial if the Northwest is to realize the Plan's economic and environmental benefits.

Some dispute this conclusion, arguing that rate increases and elimination of distorted price signals are all that is needed to secure a least-cost electrical energy future. The Model Plan supports many rate reform measures, as explained in Section VII below. But they are only part of the solution.

Rate reform, while potentially important, does not address many of the most significant obstacles to cost-effective conservation and solar measures. One of the worst barriers might be termed the "payback gap." Consumers who make decisions about conservation and solar typically demand that such investments pay for themselves, in reduced electricity bills, within relatively short periods ranging from six months to three years.* Utilities, by contrast, impose far less exacting standards on their power plant investments. A new coal or nuclear plant will not pay for itself for at least 40 years after investment begins, assuming all goes well; the "cheap" existing Columbia River hydro projects represent 50-year payback investments. Unless corrected, this "payback gap" virtually ensures under-investment in conservation and solar (and huge, unnecessary investments in power plants). The situation is made even worse by federal tax policy, which allows businesses to deduct their energy expenses and has the effect of diminishing still further commercial and industrial sector interest in spending money to reduce energy consumption.

Accompanying the "payback gap" are other significant barriers to a functioning free market in electricity use. Most obviously, decisions about end use efficiencies often are not made by those who will pay the ensuing electricity bills. Thus, landlords, not tenants, are typically responsible for deciding how efficient new and existing rental housing should be. By the same token, only about half of the most electricity intensive appliances are purchased by those who will actually use them.* Finally, disparities in income and access to investment funds ensure that, for many, rate increases will be both inequitable and ineffective tools for electricity planning; those most adversely affected are least able to respond by turning to conservation and solar measures.

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*See, e.g., Natural Resources Defense Council, Inc., Comments on BPA's Draft Forecast of Electricity Consumption in the Pacific Northwest (June 2, 1982), and sources cited therein; R. Stobaugh & D. Yergin, Energy Future 195-96 (Ballantine ed. 1981) (citing two-year payback requirement for industrial firms, on average).

Evidence of the consequences of these and related "free market" breakdowns is widely available. For example, a recent National Association of Homebuilders study examined insulation levels of houses in different regions of the country using different heating fuels.** A "free market" enthusiast would predict a consistent relationship between insulation levels and prevailing energy costs, which differ widely across the nation. In fact, in each of seven climate zones, insulation levels in electric resistance-heated houses typically were no higher than levels in gas-heated houses, despite the generally higher cost of electricity. Furthermore, houses heated by heat pumps had the highest average insulation levels, despite their relatively low energy costs compared with resistance-heated homes -- a disparity that is totally inconsistent with a free market theory. These results are best explained by assuming that insulation standards are determined by local building codes and construction practices, not energy costs.

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*See Harding, "Reagan's 'No Standard' Appliance Standard," 5 Soft Energy Notes 78 (1982); U.S. General Accounting Office, "Appliance Efficiency Standards: Issues Needing Resolution by DOE," p. 13 (GAO/EMD-82-78, 1982).

**NAHB Research Foundation, Analysis of Lawrence Berkeley Laboratory Prototypes, Cost Data and Thermal Characteristics for AIA Research Corporation (Rockville, MD: 1980).

Similar results have been obtained for appliances. Data collected by Lawrence Berkeley Laboratory for refrigerators,* and by the Natural Resources Defense Council for refrigerators, dishwashers, and clothes washers, show virtually no relationship between appliance prices and efficiencies. The Carrier Corporation has compared the average efficiency of appliances sold in the highest-electricity-cost areas of the United States with national averages; no appreciable differences emerged.**

This evidence suggests a final reason why regional energy policy should not rely exclusively on price-induced responses: from a forecasting and planning standpoint, they are largely unpredictable. Forecasts like those of the Pacific Northwest Utilities Conference Committee, which try to project reactions to changing electricity prices, have been extremely volatile -- and highly inaccurate -- in recent years (see section II.A above). By contrast, the Model Plan's proposed regulatory and incentive policies -- reviewed in detail below -- offer (1) far more certainty about future end use needs and (2) a way to render many more end uses far more efficient. Some consumers may invest in the cheapest conservation without such encouragement, but in a world of market and institutional barriers it is highly unlikely that they will invest to cost-effective limits. That, presumably, is one reason why Northwest utilities continue to press forward with efforts to construct new power plants; they do not believe that price signals alone will elicit the cost-effective conservation and solar investments identified in the Model Plan.

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*D. B. Goldstein & A. H. Rosenfeld, "Energy Conservation in Home Appliances Through Comparison Shopping," Lawrence Berkeley Laboratory, LBL-5910 (1978)

**Carrier Corporation, Position Regarding Central Air Conditioner and Heat Pump Federal Minimum Energy Efficiency Standards (mimeo: 1981)(comparing New York City and Florida air conditioner efficiencies with national averages).

b. The Role of the Regional Council

The Model Plan's effort to supplement rate policy with regulatory reform and BPA-financed incentive payments should find a powerful ally in the Northwest Power Planning Council. The Regional Act charges the Council with developing "model conservation standards" by April of 1983; these standards *must* "include, but not be limited to, standards applicable to (A) new and existing structures, (B) utility, customer, and governmental conservation programs, and (C) other consumer actions for achieving conservation." § 4(f)(1), 16 U.S.C. § 839b(f)(1). Moreover, the standards "shall be designed to produce all power savings that are cost-effective for the region and economically feasible for consumers, taking into account financial assistance made available to consumers [by the Bonneville Power Administration]." Every regulation, code, and financial incentive program described in the sections that follow is a strong candidate for Council adoption, pursuant to these statutory requirements. These include:

1. Residential and commercial building codes, and accompanying utility financing (sections B.2.d and B.3.b below);
2. BPA-financed audit and retrofit programs for existing residential and commercial buildings and irrigation systems (sections B.2.b, B.3.b, and B.6.b below);
3. Lighting codes for existing commercial buildings (section B.3.b below);
4. BPA investment in cost-effective process efficiency improvements in the industrial sector (section B.5.d below); and
5. Regulatory and incentive programs targeted at low-income consumers (Section VI below).

Jurisdictions that fail to adopt the Council's recommendations will face substantial rate penalties. In addition, the Council will be developing estimates regarding the amount of energy that BPA should plan to acquire from renewable resources.

The Model Plan's regulatory and financial incentives constitute an indispensable part of a sound regional energy program. As noted above and in the sections that follow, the Plan recommends a diversity of approaches emphasizing education, audits, improved price signals, and incentives/regulations working in tandem. To the extent practicable, audits and incentives should be offered in advance of new price signals, to minimize hardship for those most vulnerable to rate increases. If the Regional Council is receptive to these proposals, its actions will help ensure that the Model Plan becomes a reality.

2. Residential Sector

Overview

Conservation measures are available for all of the dozen or so major end uses that account for residential electricity consumption. Savings of fifty to ninety percent and more are cost-effective and feasible for each end use category. These savings are of sufficient magnitude to allow residential electricity use to decline steadily once the Model Plan's recommendations have been adopted.

This section discusses the savings available for each major residential end use. Uses are grouped by category, into space heating, water heating, appliances, and lighting. For each use, we discuss three types of conservation measures: those that are accomplished by modifying existing structures and equipment ("retrofits"), those that require the purchase of efficient new equipment or building components that are already on the market, and those that involve redesigning new buildings and equipment. We also describe regulatory and incentive programs for ensuring that these technologies rapidly saturate the region's stock of buildings and appliances.

The magnitude of achievable savings is displayed in several different ways. For existing buildings only, the "Cost-Effectiveness Table" in Appendix 6 adds up total electricity "production" that could be expected from an aggressive ten-year retrofit program. This Table sums the savings, compared to current consumption, for a number of retrofit options, arriving at a net resource of more than 1500 average megawatts. Put another way, waste that can be removed readily from existing Northwest residences is equivalent to the reliable annual output of almost three 1000 Megawatt nuclear power plants. The procedure used in developing the Cost-Effectiveness Table is appropriate for existing uses, since the difference between present consumption and post-conservation consumption is a meaningful number. However, such an analysis is more problematic as regards new buildings, where conservation savings represent the difference between actual usage and some hypothetical estimate of what consumption would have been without conservation.

Thus, for measures affecting new buildings and appliances, the effect of efficiency improvements is best evaluated in the context of a forecast of future electricity needs. High and low-conservation forecasts for the residential sector are presented in Section III.B.4. Electricity demand declines at a 2.7% annual rate from 1985 to 1990 in the low demand case, and drops at a progressively slower rate thereafter. By the year 2000, energy needs are more than 24% below current levels. For the high demand case, consumption stabilizes in 1995 at approximately 5% below 1980 levels.

These forecasts are obtained by using end use methods, in which the energy consumption of buildings and equipment is projected to change each year in response to retirement of old equipment and addition of higher efficiency replacements. Details of the assumptions and calculations entering the forecast are given in Section III.B.4. Some of the results are taken directly from the Cost-Effectiveness Table; others are based on the impact of future efficiency standards, or on average efficiencies that result from incentive programs.

All the measures described in this and ensuing sections affect system efficiencies only; they involve no reductions in standards of living. The forecast is based on BPA assumptions concerning population growth and increasing ownership of appliances. Thermostat settings for space heating are assumed to increase in energy-conserving houses, due to the reduced cost of maintaining higher interior temperatures.

All recommended measures are based on known technologies with well-documented savings and costs. Rates of implementation in the Cost-Effectiveness Table and in the forecast assume varying percentages of nonparticipants, ranging from 10% to more than 90%, over the lifetime of the Model Plan.

It should be noted that the complexities of the overall analysis prevent the savings in the Cost-Effectiveness Table from being directly comparable to the results of the forecast. Although the same assumptions were used for overlapping parts of both presentations, differences arise because the forecast more comprehensively accommodates a number of complicating factors:

- o As a package of retrofit measures is installed, thermostat settings are likely to increase;
- o As time goes by, retrofitted houses will steadily be torn down and replaced by new houses;
- o Some savings are interactive; for example, heat pumps and water use or heat pumps and space heating. Thus, savings from heat pumps (or solar water heaters) are affected by the extent to which water use has been reduced by other conservation measures.

Subsections a through f below discuss measures applicable, respectively, to (1) existing buildings; (2) new buildings; and (3) hot water, appliances, and lighting. We describe the operation of applicable conservation and solar measures, and recommend policies that would ensure attainment of the targets set in the Model Plan forecast.

a. Existing Buildings: Inventory of Measures

This section focuses on "weatherization" measures, which reduce the energy required to maintain comfortable indoor temperatures. Three complementary strategies advance this goal: adding insulation, sealing leaks in the building envelope, and improving the efficiency of climate-control systems.

Weatherization is not an all-or-nothing proposition: it can involve a number of different measures, and a greater or lesser application of each measure. The higher the value of conserved energy, the greater the number and extent of measures that can be justified.

The model weatherization program described below is much more ambitious than any utility initiatives now in existence,* but all of the measures are technically feasible and cost-effective. The program includes adding insulation for ceilings, walls, and floors; installing heat pumps and multiple-pane windows; incorporating passive solar whenever possible; and sealing air leaks through holes and cracks, accompanied by forced ventilation with heat exchange to ensure high standards of indoor air quality. Most of the measures listed can be undertaken at present. In a few instances, a pilot program may be required before specified recommendations can be instituted widely; in no case should accompanying delays exceed one or two years. New measures to supplement or replace those described are likely to become available in the future, so the program will evolve over time to offer increasing energy savings or increasing cost- effectiveness for the same energy savings.

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*A pilot project sponsored by Pacific Power & Light for Hood River, Oregon, will include most of the weatherization measures in the Model Plan, although some measures will be offered only to a limited number of customers.

Our analysis of conservation potential is organized to account for the interaction between some measures. For example, "house tightening" measures may interact with heat pumps, because the value of reducing heat leaks is lessened when the presence of a heat pump reduces the value of the heat used. In tabulations of savings, the more cost-effective measures are included first; thus, the savings calculation for later measures are performed under the assumption that the earlier measures have already been applied.*

Because of these interactions, a retrofit program should include individualized options. For example, a very small house with extensive and readily sealed leaks may not find a heat pump cost-effective, while a house that is relatively costly to tighten will be a stronger candidate for a high-efficiency heat pump. Other such tradeoffs include extra-low-flow showerheads versus solar or heat pump water heaters, and passive solar heating versus extra insulation. Some interactions are synergistic, however; e.g., thermal mass and south glazing.

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*These and other Model Plan residential sector calculations rely extensively on computerized simulations of space heating energy consumption. We analyze and compare runs of the "DOE-2" computer program performed by Lawrence Berkeley Laboratory, along with "SUNCODE-1.3" runs performed for us by Ecotope, Inc. See Appendices 7 and 10 for details.

The specific weatherization measures that are cost-effective, and thus recommended, are described in the next section. Cost-effectiveness calculations appear in Appendix 6.

i. Insulation

(a). Ceiling Insulation

Most weatherization programs in the Northwest promote ceiling insulation, but fail to install it at levels that minimize life-cycle costs. Optimal insulation levels depend on the heating system, but in all cases substantially exceed current practice. Targets for the model plan are R-49 (or 49 $(\text{Btu/hr-ft}^2\text{-deg.F})^{-1}$) for houses with heat pumps, even in the warmer parts of the region (e.g., Portland). Optimal ceiling insulation levels can be computed by conceptually adding insulation to an attic until the last millimeter of insulation no longer produces life-cycle energy cost savings that exceed the cost of installation. This calculation is illustrated in Appendix 7. The economic analysis shows that the target levels of insulation are cost-justified almost without regard to the initial level of insulation present.

That is, upgrading R-30 insulation to R-49 is cost-effective, even if a heat pump is used as the source of heat.

It has been argued that many buildings may be unable to accommodate the optimal amount of insulation in all parts of the attic, because the low pitch of some roofs leaves insufficient space. But the problem, where it exists, is limited to areas near the eaves of the roof. In these cases, insulation necessarily will be thinner at the edges of the attic than elsewhere, and costs and savings for the less fully-insulated edges will be lower than those for the rest of the attic. This effect is reflected in the Cost-Effectiveness Table, where half the houses capable of accepting R-30 insulation are assumed to have too little space at the eaves for R-49; savings (and costs) are reduced accordingly.

There is some interaction between attic insulation and leak-sealing, because pre-retrofit air infiltration often includes hot air escaping to the attic. This warms the attic, reducing the possible savings from attic insulation by as much as half. But such leaks are cheap and easy to seal (see section B.2.a.iii below), after which the cost-effectiveness of the attic insulation is as predicted. The cost of attic insulation varies with thickness. If a typical house adds R-38, the cost is about 57¢ per square foot, or about $650 per house.[2/] Savings vary depending on the initial level of insulation, but their value generally exceeds their costs by a factor of 2 or more.

(b) Wall Insulation

Wall insulation can be installed in two steps. The first, and most cost-effective, involves the injection of cellulose fiber or similar material between the wall studs. This procedure produces an R-11 wall. Life-cycle savings exceed initial costs by almost ten to one.

In the past, urea-formaldehyde (U-F) foam has been used widely as an insulating material. Recent studies on the propensity of this material to emit formaldehyde, and on the toxicity of formaldehyde in indoor air, have led regulatory authorities at federal and state levels to impose a moratorium on U-F foam installations.3/ Given these developments, and the ready availability of alternatives without any health impacts, the Model Plan assumes that U-F foam will not be used in Northwest weatherization programs.

Some people have also argued that wall insulation retrofits may cause moisture damage to houses that do not have vapor barriers. Vapor barriers prevent water vapor from penetrating the wall and condensing in the insulation, but are hard to install as a retrofit; such a modification would probably require the use of vapor-impermeable paint on the interior of the house. However, a recent study of insulated and non-insulated walls in Portland produced no grounds for concern about moisture damage.4/ Given the indisputable cost-effectiveness of the measure, wall insulation retrofits should be an integral part of the Northwest's weatherization program.

A second, more extensive wall insulation measure involves adding insulated sheathing (R-8) between existing sheathing (or the studs) and the siding, to create R-19 walls. This necessitates removing the siding to install the insulation, and then re-siding. Cost-effectiveness varies, as described below.

If the resident is planning to replace the siding anyway, the extra insulation is relatively cheap ($.67 per square foot, or about $950 per house),[5/] and the measure is cost-effective in all cases. If the siding is not scheduled for replacement, then the costs of re-siding must be added to the cost of insulation. For a new house, siding costs $1.67 per square foot.[6/] It appears that this cost also applies to retrofits, so re-insulation and re-siding costs $2.34 per ft^2, or about $3300 per house. The value of the savings generally exceeds this cost if resistance heat is used, but the measure is not cost-effective in houses with heat pumps. In any event, the high projected cost of re-siding suggests a need for further research, to obtain local prices and/or improved methods of increasing wall insulation beyond R-11.

(c) Floor Insulation

Floor insulation is costlier than ceiling insulation, but the marginal cost of increasing insulation thickness (R-value) is only slightly higher. However, since an uninsulated floor has a somewhat higher R-value (about R-6.45[7]) than a ceiling, optimum insulation levels are slightly lower than those applicable to ceilings. The cost of adding R-38 floor insulation is about 80¢ per ft^2 or about $950 for a house.[8] Cost-effective retrofit floor insulation levels will reach R-38 in houses with heat pumps and R-65 in houses with resistance heat.

ii. Glazing

Optimal window insulation is triple-pane or quad-pane, as demonstrated in Appendix 7. Triple-pane windows have already been incorporated in some Northwest utility programs. They are widely available elsewhere in the country, and can be made easily within the region. Their cost, compared to double-pane (and, in general, the cost of adding an extra pane of glass to a manufactured window of any quality) is about $2.75 per ft^2.[9] In contrast, the life-cycle savings are over $7 per square foot more than double-pane savings. Thus, wherever double-pane windows are cost-effective, triple-pane installations increase net savings. Quad-pane glass produces a life-cycle savings of about $3.50 per square foot for a heat pump-heated house, or almost $7 for resistance heat, so it may be cost-effective in many cases. Although quad-pane is not currently in mass production, some small manufacturers are advertising it.[10/] Double-glazing (and thus triple or quad) is cost-effective whenever manufactured windows can be used as retrofits. Custom windows are considerably more expensive, and require individualized computations of multiple-pane cost-effectiveness.

Other methods for reducing heat loss through windows are becoming available. Surface treatments for double-glazed windows, which reduce heat transfer without affecting transparency, can reduce heat loss by a greater extent than adding a third pane of glass. Also, a number of manufacturers are producing insulating shutters that can be closed at night to reduce heat loss. Their energy savings are comparable to those of an extra pane of glass.[11/]

The energy balance of a window is affected by its ability to transmit heat from the sun, as well as its ability to insulate against heat loss. Some have used this observation to argue that south-facing glass need not be triple-pane. But in fact the extra insulating value of the third pane more than compensates for the accompanying reduction in solar gains.[12/] The issue of solar transmissivity does suggest that technologies which achieve the insulating value of triple pane without its solar reflection will be preferred. These include movable shutters over double-pane, solar-transmissive film suspended between double-pane glass, or some of the surface-treated double-pane windows.

Since the Model Plan calls for incentives to be available based on the actual performance of a technology, calculations should be performed to determine the extra life-cycle energy savings associated with the solar-transmissive alternates to triple-glazing, particularly for sunny climates.

iii. Sealing Leaks

Weatherization programs sponsored by utilities typically include caulking and weather-stripping around windows and doors to reduce air leakage (infiltration) in houses. However, research performed at Princeton University and Lawrence Berkeley Laboratory has shown that most infiltration occurs not around windows, where it is expected, but through large, hidden holes in the structure, such as the area around heating ducts, plumbing connections, ventilation ducts, light fixtures, and wall mouldings. Unsuspected leaks generally lead from the interior to the attic. They are relatively easy to eliminate once located, and experiments at Princeton, Berkeley, and eastern Oregon have shown that typical houses can be tightened sufficiently to reduce their air leakage rate by 0.25 to 0.40 air changes per hour. The Model Plan forecast and cost-effectiveness calculations assume that, on average, these retrofits secure .25 ach reductions.

Finding the leakage sources requires house-by-house testing. The procedure for leak detection is described in several Lawrence Berkeley Laboratory and Princeton reports[13/]; it involves pressurizing the house with a fan and using a smoke source and an infrared probe to detect leaks. A simple way of accomplishing this is to install a fan in a window or door of the house to be tested, and to seal the fan mounting with plastic. The fan is turned on and forces air into the house. This air must escape somehow, so it exits through the leaks.

The auditor then walks around the house, using a smoke source (e.g., a cigarette) and determining where the smoke is being drawn rapidly out of the house. Many of the leaks that are detected can be sealed easily and cheaply with fiberglass, foam, or caulk. Auditors can use infrared heat detectors to supplement the search for leaks. For example, if the fan is exhausting air from the house, cooler incoming air will show up, using an infrared probe, as cold spots. A more sophisticated version of this procedure employs pressure and air flow meters to monitor the increase in tightness as leaks are sealed.[14/] This allows the retrofitter/auditor to evaluate progress in sealing the house.

A weatherization program should place heavy emphasis on pressurization and leak-sealing, because of its universal applicability, low cost, and high savings potential. The more sophisticated metered tests should be developed as part of the program, both to assure quality control and to test for potential problems with indoor air quality. As discussed next, the Model Plan's estimates of weatherization costs assume installation of devices for ensuring adequate post-retrofit ventilation.

iv. Improving Indoor Air Quality

Reducing the air leakage rates of houses, without any mitigation measures, will tend to exacerbate indoor air pollution. This section discusses how weatherization programs can be designed to reduce existing indoor air quality problems.

Current research on these problems does not permit firm conclusions about the necessity for corrective action. In some houses, primarily outside the Northwest, potentially dangerous levels of radon gas have been measured.[15/] Other pollutants, such as formaldehyde and carbon monoxide, have also been found at disturbingly high concentrations.[16/] A "before and after" study of twelve weatherized houses in the Northwest determined that when air changes/hour were reduced by an average of 23%, radon and formaldehyde levels increased, while nitrogen dioxide levels remained fairly constant.[17/] Post-weatherization levels of these indoor pollutants did not exceed stipulated air quality levels (taken from proposed and recommended legislation).[18/] Even though such findings might ease concerns about post-weatherization indoor air quality, the Model Plan adopts a conservative approach.

No regulatory or scientific body has developed safety standards for indoor air quality, so the number of homes that are potential risks -- either with or without weatherization -- is difficult to ascertain. Consequently, decisions concerning strategies for improving indoor air quality must be made in an atmosphere of uncertainty. Prudence dictates generous minimum rates of ventilation, at least in the short run. Over the longer term, methods should be developed and implemented for measuring indoor air pollutant levels and identifying the source of pollutants, so that mitigation measures can be targeted at houses with dangerous levels of contaminants.[19/]

These goals can be pursued most effectively through a combined weatherization/indoor air quality program. At present, some unknown but potentially significant number of houses may have unsafe interior air. This expectation is based on the observed wide variation in the emissions of pollution sources and in pollution levels, both between houses and between different times in the same houses (see Figure 1).

There is currently no agency charged with improving indoor air quality, and no organized effort to do so is now in progress. However, if mitigating indoor air quality problems is made part of the weatherization program, the program becomes a vehicle for removing hazards that otherwise would linger on

Figure 1

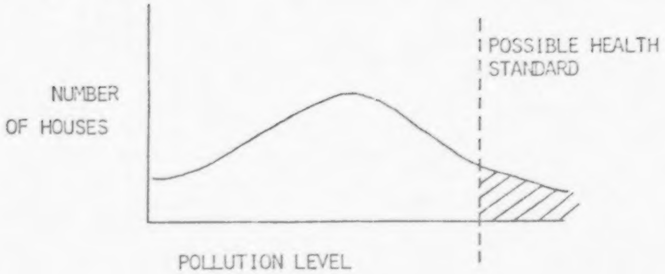

Figure 1: Hypothetical distribution function for indoor air pollution levels based on current conditions.

Figure 2

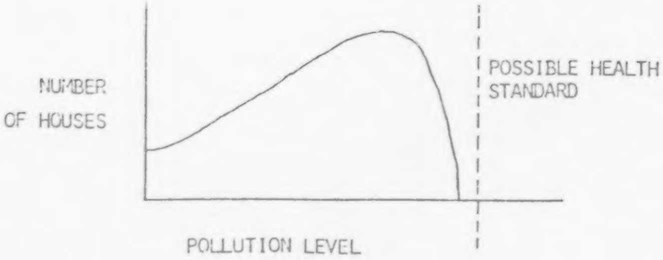

Figure 2: Hypothetical distribution function for indoor air pollution levels following a complete weatherization program including pollution control measures.

indefinitely, *whether or not* building envelopes were tightened. At the same time, it accomplishes the Regional Act's goal of securing cost-effective and environmentally sound conservation.

The weatherization program would seal leaks in the buiding envelope, as described above. It would then provide a specified minimum level of ventilation -- about 1/2 air change per hour, as suggested by Nero[20/] -- through the use of a heat exchanger. This guaranteed minimum rate would ensure that all houses had adequate air circulation.

A heat exchanger provides ventilation, while recovering heat from outgoing (exhaust) air and using it to warm incoming air. Thus, it largely eliminates the conflict between maintaining ventilation and reducing space heating needs. Our cost-effectiveness calculations assume that, on average, a single-family house will need two small through-the-wall heat exchangers for this purpose. Heat exchangers are becoming more widely available, and can be obtained commercially from a variety of manufacturers in the United States, Canada, and Japan.[21/] The retail price ranges from $300 for wall or window-mounted units to about $500-1000 for central units. Also, the devices can be fabricated locally; plans have been published for do-it-yourself construction.[22/] Heat exchangers have been shown effective in controlling radon concentrations in a high-radon test house in Maryland.[23/]

While the leak-plugging measure is clearly cost-effective even if it includes heat exchangers, it does not make sense to install the devices where they are not needed. Nero argues that moderate leak-plugging measures, such as those described above, would not be likely to increase radon concentrations to potentially harmful levels.[24/]

Northwest utilities should develop cheap methods of measuring indoor air quality as a way of saving money on unneeded heat exchangers. When these monitors are fully operational, it will be possible to identify those houses that need mechanical ventilation to ensure satisfactory indoor air quality. In some houses, no supplementary ventilation will be required at all; others may require large amounts of heat exchanger capacity. Under such a program, the post-retrofit air quality of Northwest houses would correspond with the graph in Figure 2, which shows a significant improvement over the present situation.

Most of the variation in indoor air pollution levels is explained by variations in the source of the pollution, rather than in ventilation. Thus, there are alternatives to increased ventilation that probably would offer more effective and inexpensive solutions to indoor air quality problems. Potential source-control measures include air filters, sealing of basement walls, and restrictions on the formaldehyde content of finishes and furniture. If, as expected, these strategies turn out to be cheaper than heat exchangers, utilities will have economic incentives to pursue them.

At present, given prevailing uncertainties, it is prudent to install heat exchangers in all "tightened" houses. When pollution monitors are available, heat exchangers can be limited to those houses that require them to achieve health standards.

v. Heat Pumps for Space Heating

Heat pumps extract heat from outside air or water and pump it into the house. Since their heat output includes both the energy withdrawn from external sources and the heat content of the electricity used to operate the pump, they are considerably more efficient than electric resistance heaters.

Water-to-air heat pumps, which extract heat from ground water, may be useful in areas of the Northwest that have ready access to ground water, like the Willamette Valley. Although the following discussion is limited to air-to-air heat pumps, water-to-air devices on the market today attain high efficiency levels, and we encourage their use whenever technically feasible.

The efficiency of a heat pump is called its COP (or coefficient of performance), which is the ratio of heat output to electricity input. A heat pump with a COP of 2 is twice as efficient (consumes half as much electricity) per unit of heat delivered as an electric resistance heater. The COP varies from heat pump to heat pump, and also changes as a function of outdoor temperature; heat pump performance declines as outdoor temperatures drop. On days when the device cannot supply the full heat requirements of the house, it is supplemented by resistance heating.

The seasonal COP of a heat pump depends in a complex way on its interaction with the weather and the heating needs of the house. Computer simulations have been performed to determine seasonal efficiencies in the Northwest; the results vary between individual models, from a low of 1.42 to a high of 2.25.[25/] These simulated efficiencies are corroborated by field experience.[26/] Higher efficiency heat pumps with seasonal COPs as high as 3.15 could be produced but are not currently on the market.[27,28/] These ratings must be lowered by 10% to account for losses in the duct system (such losses are also associated with electric resistance furnaces, but not baseboard heaters).

Thus, heat pumps can reduce space heating needs in the Northwest by a factor of two, but only if the heat pump program installs the higher-efficiency units exclusively. Accordingly, utility programs should promote the installation of only those heat pumps with seasonal COPs greater than or equal to 2.20, as determined by the Oak Ridge simulations; these levels of performance are commercially available today.[29/]

Heat pumps would be a new addition to Northwest utility conservation programs, but they have been installed successfully on a retrofit basis by the Tennessee Valley Authority (TVA). Auditors, trained by TVA to evaluate the suitability of houses for such retrofits, have recommended over 10,000 cost-effective heat pump installations. These recommendations are contingent on prior insulation and caulking. Over 6,000 heat pumps had been sold by 1981, each installed by one of more than 600 dealers certified by TVA. Agency managers report that the program is an unqualified technical success; the only remaining obstacles involve marketing.[30]

There are several different cases to be studied in considering heat pump cost-effectiveness. The most favorable circumstances involve substituting a heat pump for an existing electric furnace that needs replacement. In this case, the extra cost of using a heat pump rather than a new furnace is about $1200 (in 1982 dollars), as shown in Appendix 7. If the furnace is not scheduled for replacement, the cost is about $2700. Installation of a heat pump in a house with baseboard heaters may require the installation of ductwork; this will boost costs to about $3100. By comparison, TVA's average heat pump loan was for $3000 (in 1980); however, the accompanying insulation measures did not minimize life-cycle costs, so the heat pumps were unnecessarily large and costly.

In any of these cases, the heat pump is cost-effective on the average. The calculation incorporates yearly maintenance costs, and assumes that where ductwork is installed it will last the life of the house. That is, when a heat pump that cost $3000 to install wears out after ten years, it can be replaced at a price that includes only equipment and compressor replacement labor. Houses with smaller heat loads will have lower energy savings, but if smaller heat pumps can be introduced, they also will have lower initial costs.

The calculations in Appendix 6 cover the region's western climate zone; high-efficiency heat pumps are even more cost-effective east of the Cascades. Slightly higher insulation levels will be justified, and the seasonal COP of the heat pump will decrease, but in a retrofit case, the initial loads will be higher in the east and both savings and cost-effectiveness will increase. The most efficient heat pump available today has a seasonal COP of 1.8 even in Minneapolis,[31/] whose 8500 degree days exceed reported averages for virtually all Northwest communities.

Several tasks are involved in developing a cost-minimizing regional heat pump program. Heat pumps generally have been designed for climates where cooling is needed, unlike most of the Northwest. Utilities should develop specifications for a heating-only heat pump tailored to conditions in the urban areas west of the Cascades. This heat pump would be even more cost-effective than existing models, because (1) it would not require a reversing valve, a trouble-prone part; (2) its performance could be optimized for the heating mode, avoiding the necessity of balancing heating and cooling efficiencies; and (3) it would be available in smaller sizes, to better serve well-insulated houses and small apartments or mobile homes.

Incentive programs for heat pumps should be structured not only to encourage the use of heat pumps, but also to credit the performance of individual units. As noted above, heat pumps are not all alike; there is a considerable range of available efficiencies. Not surprisingly, the more efficient models tend to cost more. TVA has established minimum requirements for qualifying heat pumps: a COP of 2.5 at 47°F and 1.5 at 17°F. These are relatively lenient standards; the best heat pump on the market in 1981 recorded a COP of 3.1 at 47° and 2.3 (more than 50% better than TVA requirements) at 17°.[32/] Several other models achieve at least 95% of that efficiency level.[33/] In section 2.b.i below, we propose retrofit standards calculated to ensure that Northwest households install heat pumps that equal or exceed the efficiency of the best currently available models.

Some people have argued, incorrectly, that heat pumps will produce no peak power savings in the Northwest, because they operate less efficiently during cold weather, when capacity requirements are greatest. While heat pumps indeed are at their worst during cold weather, this "worst" is still considerably better than resistance heat -- provided that the Model Plan's proposed heat pump efficiency specifications are met. In fact, the savings during the peak period will substantially exceed average energy savings, as shown in the following illustrative example.

First, consider an existing house which, for some reason, cannot install retrofit measures that improve the efficiency of the building shell. It currently uses 10,700 kWh per year[34/] with its thermostat set for 63° at night, 66.5° during the day, and 68° in the evening (the current average for the region).[35/] Its peak heating load -- which occurs during the morning "warmup" hours -- is 29,400 Btu per hour, or 8610 watts. Installing a heat pump saves 5300 kWh/year or 605 average watts. But savings during the peak hour are 2890 watts, calculated as follows. The heat pump has a COP of 2.3 at the peak-hour ambient temperature (assumed to be 17°F).[36/] The capacity of the heat pump -- assumed to be a 2.5 ton unit for this poorly insulated house -- is 17,500 Btu/hour.[37/] Thus, the load on the heat pump compressor is 17,500/2.3 x 1 Btu/3.413 watt-hours = 2230 watts. The heat load not met by the heat pump is the difference between the total load (29,400 Btu/hour) and the load satisfied by the heat pump (17,500 Btu/hour) or 11,900 Btu/hour. This requires 11,900/3.413 or 3490 watts. Total load is thus 5720 watts, for a savings of 2890 watts.

Thus, peak savings are 2890 watts and average savings are 605 average watts. For a highly insulated house, the ratio is even more favorable to peak savings: the heat pump saves 1740 peak watts, versus 115 average watts.[38]

Again, we emphasize that the above discussion of cost-effectiveness and savings is based on high-efficiency heat pumps. Low efficiency heat pumps do not work in cold temperatures and are unsuitable east of the Cascades. Conversely, high-efficiency heat pumps supply useful heat at up to 20° below zero, and thus make a contribution even in the coldest parts of the region on the coldest foreseeable day.

vi. Solar Heating

Most passive solar design efforts have been directed at new buildings, not existing houses. Nevertheless, a number of promising passive solar retrofit packages have been demonstrated, including greenhouse or sunspace additions, Trombe wall conversions in existing masonry walls, and thermosiphon panels.[39]

Passive solar techniques can often be applied effectively in existing homes during the expansion of floor area or extensive remodelling. Room additions should be treated as new buildings, and should conform to the performance standards described in Section B.2.d. below. These standards encourage passive solar applications wherever site conditions permit their use.

Solar retrofit measures are less amenable to generalized discussion than other weatherization options, because of wide variations in design and construction for both passive and active systems. For example, owner-built devices frequently cost one-third or less as much as contractors' installations, while design criteria may call for savings ranging from 30% to almost 100% of heating energy.

Because of this variability, conservation programs involving solar retrofits should be designed to give cost incentives based on performance. Such a system would encourage the development of the lowest-cost solar retrofits, which should compare favorably in price with other weatherization measures.

Prospects for marketing solar retrofits are good, because they offer benefits that go beyond the economic value of energy savings. Passive solar buildings enhance both comfort and security for occupants, providing assurances of habitability even if electrical service is curtailed or disrupted.

vii. Wood Heating

Wood is becoming an increasingly popular alternative to electricity and gas as a home heating fuel. Many homeowners see wood as a relatively cheap heat source, and one whose costs are more more directly controlled by the user. The prospect of increased self-reliance is also attractive. However, because of this resurgence, the detrimental side of wood heating -- especially the deterioration of indoor and outdoor air quality -- is attracting substantial concern. As a result, the Model Plan forecast does not assume increased efforts by BPA or the Regional Council to promote wood heating as a way to displace electricity consumption.

However, air pollution problems associated with wood heat can be reduced substantially through use of the Model Plan weatherization measures, coupled with proper installation and operation of wood stoves. If the Regional Council opts in favor of financial incentives for wood-burning, recipients should be required to weatherize fully first. Otherwise, the electricity savings from "fuel-switching" may be short-lived; the installer or subsequent occupants could easily switch back to electricity at a later date. Moreover, weatherization is crucial from an environmental quality perspective: by minimizing the amount of wood that must be burned to secure comfortable temperatures, the Model Plan's weatherization program would substantially reduce emissions of pollutants.

Other important components of a wood-heating incentive program would be air-to-air heat exchangers to ensure adequate indoor air quality (see section B.2.a.iv above) and consumer education on proper wood-burning practices.* At the same time, more investigation is needed of pollution-reducing technologies such as filters and catalytic converters. Such research would complement the development of regional emissions standards for wood stoves, comparable to those set for industry in the federal Clean Air Act.

viii. Reliability, Performance, and Projected Lifetimes of Weatherization Measures

This section addresses several concerns that apply across the spectrum of weatherization measures. These issues include the effect of weatherization on peak power use, the lifetime of weatherization measures, and their actual effectiveness in the field.

Some analysts, particularly at BPA, have questioned whether conservation measures save peak power. We showed above that heat pumps not only produce such savings, but actually are even more effective in reducing peak demand than in reducing energy consumption. The same is true of most conservation and passive solar measures.

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*For example, recommendations developed by the Oregon Department of Environmental Quality include (1) burning only dry wood and no trash, since wet wood has less heat value and trash can emit toxic gasses; (2) leaving dampers fully open for the first 30 minutes, since this is the period of maximum pollutant emissions; and (3) ensuring that dampers are sufficiently open at all times to fully combust the wood, since smoldering fires are the worst polluters and increase creosote build-up, which can lead to chimney fires.

As an illustration, compare a poorly insulated house with random orientation to a new, fully weatherized Model Plan house with passive orientation. If we assume no change in thermostat behavior, the Model Plan house uses 8660 kWh less than the base case home (2040 kWh/year versus 10,700 kWh/year),[40] for an average power savings of 990 average watts. Peak-hour demand (for morning warmup) drops by 4220 watts (to 15,000 Btu/hour from 29,400). Thus, peak savings are four times average savings.

This computation is not radically altered by changes in assumptions concerning the presence of morning warmup or its coincidence with the peak. While an exact ratio of peak savings to average savings must be determined statistically to account correctly for behavioral effects, our computer simulations indicate that peak savings would exceed average energy savings by a factor of about three or four. It should be noted that this "extra" peaking contribution is accompanied by additional dividends during unusually severe winter conditions. In contrast to a power plant, whose output does not increase (and may have to be cut back) during extreme weather periods, the contribution of conservation measures generally increases at such times. Thus, insulation and leak-sealing have an additional "insurance" value beyond that reflected by the average savings projected in the Model Plan.

The lifetime of weatherization measures must be estimated as part of the cost-effectiveness analysis underlying comparisons between generation resources and conservation. Controlled measurements are sparse, but discussions with insulation manufacturers and other experts indicate that most insulation measures should last as long as the house.41/ This is on the order of 100 years. Insulation is, of course, installed in areas protected from the elements; it has not been observed to decay or degrade over time, except when exposed to conditions that will also destroy the rest of the structure (*e.g.*, water leaks).

Glazing is also very long-lived, particularly multiple glazing installed in double or greater strength. Hundred-year-old houses not infrequently contain the original glazing, or at worst one replacement, even when the original glazing was low-quality single-pane glass.

Some other modifications also clearly last as long as the house. Duct systems, once built, do not have to be re-installed, although maintenance may be needed to preserve the sealing. Passive solar orientation and thermal mass stay with a house throughout its life. Other systems require periodic replacement or maintenance. Caulking and weatherstripping typically last only five years or so, although some longer-lived materials are available. In addition, the Model Plan assumes replacement of heat exchanger fans every fifteen years, and regular maintenance of heat pump compressors. Replacement of compressors is budgeted at ten-year intervals in our cost calculations.

The lifetime of single-family housing is approximately 100 years, as determined by the removal of housing stock between the 1960 and 1970 Census.[42] The destruction of housing is not primarily a function of inherent structural decay -- indeed, wood frame houses from the 16th and 17th centuries are still standing, and wood public buildings in Japan have survived up to eleven centuries of use. Housing removal is caused primarily by catastrophic events -- fires, floods, etc. -- or economic factors (such as highway construction, commercial conversions, etc.). These occur relatively independently of the age of the building; thus, most existing buidings have a mean potential lifetime of 100 years or more.

Nonetheless, the Model Plan limits the time horizon for economic comparisons to 40 years, as explained in section III.A.2.d above, to allow for direct comparison between power plants and alternative measures. Where conservation measures have shorter lifetimes, the actual lifetime is used in the cost analysis. For long-lived measures, costs and benefits are computed for a 40-year period. This is a conservative assumption, as most long-lived measures can be expected to be saving energy 50 years and more in the future.

Some energy analysts have argued that the predicted energy savings from weatherization may not be realized in the field, and that the savings are purely theoretical at this point. While empirical results obviously are not yet in for the Model Plan program itself, a large number of studies of predicted versus actual weatherization results have been made, and they overwhelmingly support the models and methods employed in the Model Plan.

Of course, it is easy to show examples where field results fail to live up to predictions, because the original predictions emerged from a flawed methodology. However, the accuracy of the computer models underlying our analyses has been confirmed repeatedly in comparisons between simulated and actual results. For example, comparing measured data with the Lawrence Berkeley Laboratory computer simulations on which the Model Plan relies, LBL finds generally excellent agreement.43/ The computer model in question has been predicting actual consumption in residential buildings within a range of less than +/- 10%.44/

b. Existing Buildings: Regulatory and Incentive Policies

i. Minimum Standards for Retrofit Measures

Unless residential retrofits are structured to realize the full cost-effective conservation potential identified above, the region will waste both energy and money. For a number of measures, there is a fixed overhead cost associated with performing the retrofit at all, and a second cost component that varies depending on the level of the measure. Inadequate initial retrofits create two types of economic losses, involving both excessive overhead payments and wasted energy. Thus, ceilings insulated, say, to R-30 will later be eligible for upgrading to R-49; either overhead costs must be incurred twice, or the extra savings must be forgone. Alternatively, overhead costs for replacing windows are so high that a re-retrofit conversion from double-pane to triple-pane may not be cost-effective, even though the optimal initial retrofit is triple-pane. In this case, a less-than-optimal retrofit produces an irreversible waste of energy for the lifetime of the measure.

Such considerations argue for a retrofit program based on prescriptive minimum levels of conservation. These requirements should be embedded in a system that allows flexibility, but where they are applicable, only qualifying measures should receive the utility payments described in the next section. It is not appropriate to require performance standards for the whole house (for existing houses), because individual houses may have unique features or problems. One house may have odd-sized windows that cannot be economically converted to triple-pane; another may have special decorative siding that would be defaced badly by drilling holes for wall insulation. In these cases, the consumer should be able to apply only those measures that are suitable for the house in question. However, once a measure is selected, eligibility for payments should be keyed to full compliance with prescriptive or performance requirements. These requirements will not prove economically burdensome for participants if -- as the next section explains -- they are backed by the Model Plan's recommended program of financial incentives.

Based on the previous discussion, we recommend the following model standards for retrofits:

o Accessible attics with less than R-38 insulation should be insulated to R-49 wherever there is sufficient space. If R-49 is not feasible in a part of the attic, insulation in that area should be as thick as physically possible without blocking ventilation.

o For houses that will not be installing heat pumps, R-70 attic insulation should be used where structurally feasible.

o Flat roofs should be insulated to a level that is determined by life-cycle cost analysis.

o Walls currently uninsulated should be insulated to R-11, using materials that meet standards (such as the California standard) for health, safety, and effectiveness. Energy auditors should explore the feasibility of adding insulating sheathing to all walls; this measure will be cost-effective in some cases.

o Floors should be insulated to R-38 wherever existing insulation is R-30 or less. For houses not installing a heat pump, floor insulation should be R-65 or as close to R-65 as physically possible.

o Energy audits should determine which windows are cost-effective to retrofit with triple-glazing or quad glazing, or their equivalents in thermal performance. Double-pane storm windows over existing single-pane, or insulating shutters over double-pane windows, provide performance equivalent to that of triple-pane.

o All energy audits should include pressurization testing for leakage of air. Homeowners should be offered the option of having leaks sealed and a heat exchanger installed. At present, heat exchangers capable of supplying 1/2 air change per hour at 65% heat transfer efficiency or greater should be installed universally. When pollution monitors are available, heat exchangers should be used to the extent necessary to meet pollution standards, or upon request of the homeowner. The leak-plugging measure should be performed before the other insulation measures.

o Heat pumps should be used wherever feasible and cost-effective. Heat pumps should not include cooling capacity where central air conditioning is not already present. If cooling is to be employed, the thermostat should be installed so that a choice must be made between cooling and heating, rather than allowing the unit to switch automatically between the heating and cooling modes. The heat pump should meet minimum efficiency requirements of approximately 3.0 COP at 47°F and 2.1 at 17°F, or equivalent seasonal COP. Performance better than the minimum should qualify for a higher incentive payment. The heat pump should be sized to fit anticipated post-weatherization heating loads.

Of course, no homeowner is required to accept any particular conservation measure on this list. However, any measure installed should conform to the minimum requirements listed above.

In addition to the other benefits reviewed above, this procedure nullifies one of the most persistent objections to utility-financed retrofit programs: that they needlessly pay for measures that would have been installed regardless. Virtually no consumers are now installing the cost-minimizing measures recommended in the Model Plan; those retrofits that are occurring in the absence of incentive programs involve an extremely limited range of what must, by Model Plan standards, be termed halfway measures. Again -- inadequate retrofits waste energy, often irreversibly, and the Model Plan program is an urgently needed corrective.

ii. Program Implementation

As explained in section III.B.1 above, Northwest conservation programs must overcome substantial barriers in order to secure all savings that are less expensive than new electricity supplies. Care must be taken to maintain high quality standards, and to minimize costs. In discussing ways to achieve these objectives, we begin with incentive programs that build on residential audits and utility payments of the basic type already in existence in the Northwest.

(a.) Incentive Programs

This section discusses four crucial features of incentive programs for existing residential buildings: (1) identifying measures that should qualify for financing in each household; (2) setting payment levels for particular measures; (3) maintaining effective cost and quality control standards; and (4) avoiding unintended -- and counterproductive -- "side-effects." Each of these issues is addressed separately below.

(i.) Identifying Appropriate Measures: The Audit Process

Properly conducted home energy audits are crucial to the success of residential energy conservation programs. Some Model Plan measures require detailed measurements or calculations that are beyond the abilities of most individuals, but which are easy for appropriately trained auditors. In particular, the heat pump measure involves performing heat loss calculations to determine the size of the heat pump -- an easy task for a skilled auditor, but daunting to most untrained individuals. Auditors should have access to computer or calculator programs that can perform accurate heat loss calculations, such as the CIRA program from Lawrence Berkeley Laboratory,[45/] and the present value methodology described in section III.A.2 above.

In addition, competent audits are crucial for implementing leak-sealing measures and testing for satisfactory indoor air quality. The leak detection process, though conceptually straightforward, requires auditors trained and experienced in these techniques; it also is best accomplished with the use of relatively sophisticated equipment. Energy auditors will function as "house doctors," plugging leaks as they find them. An experiment at Princeton, performed in collaboration with several New Jersey area utilities, showed that an excessively short training period (two days) for house doctors resulted in inadequate retrofits.[46/] We estimate that at least a week is needed to teach even experienced utility auditors to be effective house doctors. The cost of such a program is about $500 per student.

(ii.) Payment Levels for Residential Conservation

A fundamental premise of the Model Plan is that utilities, when allocating investment funds, should approach conservation and solar no differently than they approach power plants. No existing utility program comes close to meeting this test -- arbitrary limits of various kinds almost invariably have been designed to ensure that utilities pay no more than a small fraction of the cost of major conservation and solar retrofits. Utilities prepared to invest the equivalent of 8-10 cents per kilowatt-hour over the entire projected 30-40 year lifetime of a power plant have offered at best one-third as much for conservation, and generally have insisted that residents bear a substantial part of the costs of all but the cheapest measures.

One rationale for these discriminatory policies involves a complicated concept called the "no losers test." This test does not threaten the Model Plan program, since virtually Model Plan measures would comply even if BPA paid their full costs. Nonetheless, we address the concept here, because it rests on a fatally flawed foundation and could work to suppress some higher-cost (but still cost-effective) conservation and solar measures.

The "no-losers" test puts a limit on conservation investment, which is designed to ensure that ratepayers who do not participate in incentive programs pay no more for electricity than they would have under an alternative scenario, in which the incentive program did not exist, and new electricity supplies were developed instead. Utilities applying this test are saying, in effect, that the society's total electric bill is less important than the level of individuals' electric rates; they are willing to let the bill grow more than necessary in order to keep rates down. The simplified example below illustrates the tradeoff.

Assume: (1) total consumption is 800 kWh

(2) each of these kWh costs an average of 3¢

(3) consumption is slated to grow by 200 kWh

(4) we can save those 200 kWh for an average of 6¢ each OR

(5) we can generate those 200 kWh from new power plants for an average of 8¢ each

Under the conservation alternative, the total bill is $36.00, spread over 800 kWh. Under the power plant alternative, the total bill is $40.00, spread over 1000 kWh. The conservation solution is cheaper overall, but note a surprising result -- the cost per kilowatt-hour after conservation (4.5 cents) is higher than the cost per kilowatt-hour under the power plant alternative (4 cents). This occurs because there are more kilowatt-hours sold under the power plant alternative, so the costs are spread over a larger number of units of energy. The "no losers test" insists, in effect, that conservation can never be allowed to raise rates more than an equivalent amount of new generation would -- even though the result is a higher than necessary total bill for electricity.

As Appendix 8 explains in detail, the "no losers" test is really a "hardly any winners" test. It is discriminatory, in that it has never been applied to other public investment choices (such as power plants and incentives for industrial growth). It is also counterproductive, in that it raises the region's electricity bill and is out of touch with the cost-minimizing goals of the Regional Act. Its nominal purpose -- ensuring equitable distribution of conservation benefits -- is better served by the Model Plan's incentive and regulatory recommendations, which will allow virtually everyone in the Northwest who uses electricity for any purpose to participate in conservation and/or solar programs. The Model Plan recognizes what the "no losers" test ignores -- it is the total electricity bill that is paramount to consumers and society alike, not the cost per unit of electricity.

To keep the Northwest's electricity bill as low as possible, it is crucial to make adequate payments for conservation savings. The Model Plan's residential weatherization measures are cost-effective even if BPA pays the full cost of purchasing and installing them; in fact, as noted above, the gap between BPA's average rate and the cost of new supplies is so great that such payments would almost uniformly satisfy the "no losers test."* If BPA defrays all expenses associated with the Model Plan retrofit program, including the audit process and associated overhead costs, it will be buying kilowatt-hours for about 3.8 cents each. Lesser payments are consistent with the principle of least-cost investment only if

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*To satisfy the "no losers" test, payments must be held to the difference between a utility's average rate for electricity sold and the cost of electricity from new power plants. In BPA's case, this gap is extremely large -- current average rates are 1.8¢ per kilowatt-hour for most of the agency's sales, while new supplies will cost at least 8 cents, excluding environmental costs (see section III.A above). If the Model Plan is implemented, this gap is likely to remain stable or increase, even if average rates increase at a higher percentage rate than the cost of new supplies. This seemingly counter-intuitive result reflects the fact that the gap between a low number and a high number remains constant over time when the low number increases at a faster rate than the high number. Consider the following illustrative table; all figures are net of inflation, and the rates of increase are given in parentheses. These figures are hypothetical and do not constitute predictions; they are merely used to illustrate the point at issue.

	BPA Wholesale Rate		BPA Avoided Cost		Gap
Year 1	2¢		8¢		6¢
Year 2	3¢	(50%)	9¢	(12.5%)	6¢
Year 3	4¢	(33%)	10¢	(11.1%)	6¢
Year 4	5¢	(25%)	11¢	(10%)	6¢
Year 5	6¢	(20%)	12¢	(9.1%)	6¢

Under the Model Plan, BPA wholesale rates would stabilize over the long term, in real dollars, at a level well below the cost of new thermal generation; if real thermal power costs continue to escalate to any extent thereafter, the gap between wholesale rates and avoided costs will actually widen.

it is clear that participation rates will not be affected appreciably.

A key issue, then, is whether BPA can offer program participants an overwhelmingly attractive "deal" without defraying all costs of participation. Consider, for example, a rebate/zero interest loan package, which imposed no initial costs on program participants, gave them part of the Model Plan package for nothing, and allowed for payment of remaining costs (at zero interest) when the weatherized house was sold. This would allow participants to avoid all up-front costs associated with the retrofit, defer what amounts to only partial repayment of those costs until the proceeds from selling the house were in hand, and realize immediate savings on utility bills. Such a system would provide for some cost-sharing between BPA and the consumer, without significantly reducing incentives to participate.*

It should be emphasized that there is no economic rationale for a uniform ceiling on utility investment per dwelling. Conservation measures should be applied whenever they are cost-effective, and some houses may require substantially larger investment than others. The result will be substantially increased utility expenditures for consumer-procured conservation, compared with current practice. In extreme cases -- e.g., an uninsulated 3000 square foot house -- it will be appropriate to spend $10,000 or more on cost-effective weatherization retrofits.

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*Low-income consumers present a special case, as explained in section VI below.

The economic logic of the program compels another important conclusion, which may seem surprising: Bonneville should offer payments for any conservation measures undertaken by the consumer, whether or not BPA deems it cost-effective. For savings from "non-cost-effective" measures, BPA payments should be set no lower than the difference between its avoided cost and its wholesale rate. Under this scheme, the only party who pays for the "excess costs" is the consumer who elects to incur them; no ratepayer can object to such a choice, as long as no one else is subsidizing the "excess" costs.

Payments for "non-cost-effective" measures should encourage innovative conservation and renewable energy measures, which may well prove cost-effective after experience with them is obtained. In fact, many of them eventually may turn out to be preferable to conventional methods.

The costs of a residential conservation program are not, of course, limited to the price tag for purchase and installation of measures. Also included in the Model Plan's cost-effectiveness calculations are expenses associated with auditor training, addressed above, and costs associated with quality control, to which we now turn. A corollary is that BPA payments for conservation must be targeted not only at homeowners, but also at the agencies responsible for making these crucial services available.

(iii.) Cost and Quality Controls

In general, a poorly administered weatherization program will lessen price and quality competition among participating contractors, both by causing bids to cluster around utility-selected price "ceilings" and by removing consumers' incentives to shop selectively. Accordingly, program designs should incorporate both quality controls and incentives for consumers to minimize costs. The latter can be provided through a uniform schedule of utility payments to consumers who weatherize, which is keyed in every case to the average price of the measure selected, taken from a broadly based survey of retailers. Consumers who find contractors that are willing to undercut the average can pocket the difference; consumers who overpay do not recoup their excess expenditure. Such a system would encourage both consumers and contractors to minimize costs. The common current practice of tying utility payments directly to contractor charges affords no inducement to economize.

The enforcement of quality controls requires spot checks of installations. For each contractor, the first several dozen jobs should all be checked; for those who perform well, subsequent random spot checks of a small percentage of jobs probably will afford adequate safeguards against abuse. Where a defective installation is found, the contractor at fault should be required to re-do the job, and the repair should be re-inspected. At the same time, inspections of several other installations by the same contractor should be initiated, and repairs (if necessary) required. Contractors who consistently fail quality tests should be dropped from the program. These safeguards should induce careful control of quality by the contractors themselves, because the penalties for failure are high.

Finally, a certification procedure is needed to develop a roster of local manufacturers and installers for heat pumps, triple-glazing, and heat exchangers. During their home energy audit, residents should be given a list of certified contractors equipped to undertake recommended measures. Also, with regard to leak-detection and sealing, additional research is needed to ensure the best possible results in multi-family units. Experience outside the single-family residence category is limited, as regards both identifying common leak sources and developing reliable detection methods.

(iv.) Other Safeguards

Incentive programs must be designed carefully to avoid unintended -- and counterproductive -- side effects. An instructive case in point emerges from the TVA service territory, where a conservation program induced builders to construct uninsulated houses so that buyers could qualify for a subsidy to install retrofit insulation. The problem can be avoided in the Northwest by limiting the eligibility of new homes for retrofit assistance (see section B.2.d.ii below).

(b.) Regulatory Programs

For owner-occupied housing, the incentive programs described above should ensure that participation in Model Plan measures is both extensive and equitably distributed. One crucial gap cannot, however, be bridged by payments alone: the breakdown in weatherization incentives that results when the owner of a building is not responsible for paying its electricity bills.

Retrofit conservation measures currently are found almost exclusively in owner-occupied residences. Means for encouraging retrofits of rented dwellings have been discussed for several years, but no promising incentive programs have surfaced. Yet such dwellings account for about 40% of the Northwest's electrically heated units.

The most effective way to motivate landlords to weatherize their buildings is to mandate the retrofit, and the Regional Council is in a position to press all Northwest jurisdictions to do just that. Mandatory retrofits are the only proven way of ensuring that poor people and renters benefit from conservation programs to the same extent as middle-class homeowners.

To discuss mandatory retrofits is to raise a politically charged subject that has attracted more than its share of rhetorical abuse. Several qualifications, therefore, are in order at the outset. First, the program we recommend will spread costs and benefits equitably, with utilities serving as financing mechanisms equipped to ensure that no building owner is asked to bear burdens disproportionate to the benefits that will be realized upon resale of the weatherized unit(s). Measures included in the program would qualify for the same financing that is available for owner-occupied units. Second, criminal penalties should play no part in the enforcement process. The sole sanctions involved in the program would be delays in building sales pending compliance.

Phased-in, mandatory retrofits of rental housing are now part of the legal landscape in Minnesota, Wisconsin, and many parts of California. These jurisdictions have concluded, properly in our view, that there is no reliable alternative mechanism for exploiting the cost-effective conservation resource that rental units represent. These precedents can and should be followed throughout the Northwest region.

To the extent that the mandatory program fails to require the full range of measures that the audit identifies as cost-effective, utilities must act to compensate for the disincentives to conserve inherent in the rental housing context. Accordingly, where a rental unit can conserve electricity cost-effectively by adopting measures in addition to those that are mandatory, BPA should offer to underwrite installation of those measures at no charge to the landlord or tenant.

This level of funding would clearly be cost-effective to BPA. Since all measures, including the last, have a cost of conserved energy which is less than or equal to the cost of thermal power, the program as a whole will be less expensive than offsetting thermal energy purchases. In sum, if 100% rebates are necessary to get landlords to embrace the full range of cost-effective weatherization measures, then ratepayers as a group will be better off increasing the payments to landlords than they would be if BPA turned instead to expanded thermal power purchases.

Inclusion of extra payments for landlords is also advisable on equity grounds. Rental units house disproportionate percentages of low and moderate income families, so that retrofits concentrated among homeowners would produce a regressive redistribution of income. The rental weatherization initiative can be seen, therefore, as a means of ensuring that lower-income families share in the direct benefits of energy conservation.

That prospect can be enhanced further through provision of methods for tenants to initiate retrofits. BPA could assist in preparing a standardized form by which a tenant could request audits and subsequent retrofits, subject to the approval of the landlord. This would allow the primary beneficiaries of reduced rental unit utility bills to set the weatherization process in motion.

Setting up a special incentive for rental units introduces a reason for owner-occupants to seek rental status for their units, in order to obtain higher than normal conservation payments. Mechanisms are needed to prevent spurious reclassifications (*e.g.*, the owner rents the unit for just long enough to have it weatherized, and then moves back in; or a multifamily rental building is converted to condominiums immediately following weatherization). Safeguards can easily be designed to discourage such activity. One option is to attach a conditional, deferred payment loan obligation to retrofit payments; the loan agreement could specify actions that would trigger or dissolve a repayment obligation for owners of the rental housing in question.

We re-emphasize that the *extra* (100%) payments recommended above would cover only those retrofit measures that are *not* required under mandatory weatherization programs.

c. New Buildings: Inventory of Measures

Conservation and solar measures can reduce the space heating energy needs of a new house in the Northwest to virtually zero. In fact, there are so many ways to achieve this performance that the last few measures will be competitive with each other for cost-effectiveness: if a given measure reduces the heat load too much, it will no longer be cost-effective to apply the next measure. This circumstance argues for the use of a performance-based standard for both building codes and accompanying incentive programs. The Model Plan recommends a minimum performance standard for resistance-heated building shells of about 2 kWh/ft^2 per year, a reduction of at least 70% compared with current practice.

Performance standards are based on the calculated energy consumption of a house design, using standardized methods and assumptions. These calculations will not necessarily pinpoint the energy consumption of each individual house, but they can be structured to predict accurately the consumption of large groups of houses, and of individual houses operated under standard conditions. See Appendix 10 for details.

Cost-effective performance levels are computed by reference to a prototype house with defined conservation and solar measures. This exercise produces a description of a house with sharply reduced life-cycle costs; other houses with similar performance attained by alternate methods can also be described. The performance nature of the standard means that new houses need not necessarily incorporate the prototype characteristics on which the cost analysis is based; any design is permissible, as long as it meets the energy budget. Therefore, the recommendations discussed below should be considered merely illustrative of the cost analysis and the types of measures that will produce compliance.

Many of the measures appropriate for new houses are analogous to those applicable to existing houses. However, several additional conservation measures can be used in new buildings, resulting in still lower energy consumption.

Ceiling and floor insulation levels are calculated similarly to those for retrofit cases, because the physical process of installation is the same. Savings are also the same. Thus, optimum insulation levels, assuming the use of a heat pump, are R-49 for the attic and R-38 for the floors. Triple-glazing is indicated, because the extra cost of the third pane is independent of whether the window is installed new or as a retrofit, and the savings are approximately the same.

Wall insulation should be R-27, a level higher than that appropriate for retrofits, based on the following combination of measures. Analyses underlying the current Oregon building code, which are included in the proposed federal building energy performance standards (BEPS), show that it is cost-effective to install R-19 insulation in walls by using 2x6 studs instead of 2x4s, allowing 5-1/2 inches of insulation rather than 3-1/2.[47/] If the studs are installed 24 inches apart instead of the conventional 16 inches, framing costs are virtually unchanged.[48/] Thus, the net cost is only the extra cost of the thicker insulation batts.

In addition to this R-19 insulation, R-8 sheathing can be used in place of the usual plywood or fiberboard sheathing; the extra cost of about 42¢ per square foot (about $500 for a typical house) is easily repaid in energy savings, which are about $800 with a heat pump energy source.[49/] Doors should also be insulated; a wood door contributes significantly to heat loss in an otherwise tight house.

The most effective additional measure is expanded leak-plugging. The procedure for detecting leaks with a pressurization test is described in section B.2.a.iii above; it is equally applicable to new and existing homes. But during construction, leak-sealing can be effected more easily and more completely than is possible during a retrofit. By caulking under sill plates, at all double studs, around window frames, electrical and plumbing work, etc., and by using continuous plastic sheeting as a vapor barrier, infiltration rates can be reduced to 0.1-0.2 air changes per hour (ach) at a nominal cost (about $300). At this level of air tightness, heat exchangers are much more important than in the retrofit context, adding an additional $300-$600 to the cost of this measure.

The resulting energy savings are impressive. In Portland, advanced leak-plugging offers 40% heating energy savings, on the average, assuming an infiltration-rate of 0.2 ach and a ventilation rate of 0.4 ach.[50/] This measure is clearly cost-effective: the present value of savings is over $3000.

Additional opportunities are offered in new housing by the ability to orient the house for maximum winter-time solar gain. Proper orientation, coupled in some cases with use of thermal mass (for example, exposing a slab floor to the sun and the room air by using tile rather than carpeting), provides one of the more cost-effective methods of reducing energy use. The California Energy Commission based its energy performance standard on the requirements of a passive solar house, because it found that the cost of adding solar features to a building already being constructed on a slab floor was minimal.[51/] The orientation component of the proposed Model Conservation Standard for new houses (section B.2.d.i below) is patterned after the California standard; it is cost-free, because it does not add collector windows but merely re-orients windows toward the south.

More extensive passive solar heating options involve increasing the collector window area, and adding to the thermal mass of the building. These technologies can reduce energy consumption by 50% even in mild, cloudy parts of the region such as Seattle;[52/] savings are larger in the colder, sunnier parts of the region.

Serious passive solar design is not free, and it requires expert engineering work. Larger collector windows require tailoring amounts and locations for thermal mass to prevent overheating; thermal mass can cost $1 a square foot if elements like concrete floor slabs are not a part of the base house design. And extra window areas can increase costs still further. However, such "seriously passive" houses offer a number of unique advantages.* Because the solar house absorbs radiation on the inside wall and floor surfaces, these surfaces are generally warmer during winter months than the room air. As a result, the solar house is more comfortable at a given air temperature, because the room walls radiate heat to the occupants. Extra thermal mass is another source of the greater comfort associated with solar houses: they do not cool off as quickly at night, nor do they warm up as much during summer hot spells. A number of non-air-conditioned passive houses in California's Central Valley have been observed to remain in the 70s all day during 105° summer weather. This characteristic of thermal stability is particularly valuable in the event of a crisis: well-insulated passive houses will remain reasonably comfortable in winter without any space heating at all.

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*A recent survey of 200 owners of passive solar houses produced remarkably uniform results: "86% of the homeowners contacted over a two-year period said they were 'very satisfied' with their homes and 12% said they were 'somewhat satisfied.' No one said he was 'not satisfied' and 2% offered no response." Solar Energy Intelligence Report, May 11, 1982, p. 11.

Passive solar modifications are not possible in all new houses, given constraints imposed by shading from trees and other buildings, but they can be used in many if not most new subdivisions.[53/] Because the applicability of strongly passive solar designs is not universal, and because the cost-effectiveness calculations are problematic, the Model Plan's recommended performance level does not require such designs. However, our performance standard implicitly assumes that new houses are properly oriented to take advantage of available sunlight. Of course, designs that use innovative solar measures to beat the standard should qualify for incentive bonuses (see section B.2.d.ii below).

Calculation of the energy use of a properly oriented (or moderately passive) building shell is performed in Appendix 7. The heat load is 2.0 kWh/ft^2 per year for Portland. That figure assumes use of resistance heat and a constant 70° thermostat; currently available high-efficiency heat pumps can reduce the heating energy needs of a new Model Plan house by an additional 50%. Redesigned heat pumps could be built with a seasonal efficiency as high as 2.88 in Seattle[54/] and still be cost-effective for a Model Plan house. The best re-design currently proposed has a seasonal efficiency of 3.15 in Seattle.[55/] Thus, heat pumps could reduce heating energy use in new housing to the range of 0.7 - 1.0 kWh/ft^2 per year. For forecasting purposes, we have assumed an average consumption of 2 kWh/ft^2 in the high demand case for new construction in the region, and 1 kWh/ft^2 in the low case. The derivation of these averages is explained in Appendix 7.

Other methods to reduce energy use for climate control include solar-assisted heat pumps and ground-water-based heat pumps. Oregon already offers tax incentives for the use of water-based heat pumps that achieve efficiencies greater than 3.0. Also, do-it-yourself active solar heating systems will be attractive to some homeowners. Combinations of all the measures described in this section can reduce space heating energy needs to the point of insignificance. Programs for encouraging the transition are discussed below.

d. New Buildings: Regulatory and Incentive Programs

None of the region's existing building codes comes even close to meeting Model Plan specifications for new housing. This is not surprising; these codes are among many outgrowths of a vanished era of cheap energy. Indeed, Idaho -- alone among the fifty states -- has no statewide building code whatsoever. By contrast, to cite only one of many examples, California building code reform will soon leave San Diego enforcing standards for new housing that are tighter than those of any Northwest city.

By lagging so far behind on new construction standards, the Northwest is squandering literally hundreds of millions of dollars annually on unnecessarily wasted electricity (not to mention other fuels). As in other contexts, the Model Plan recommends a package of incentive and regulatory measures for new housing, designed to ensure improved performance while overriding accompanying increases in the cost of construction and inspections.

i. Building Performance Standards

As indicated in the preceding section, existing Northwest building codes should be revised to require compliance with performance targets (kWh/ft^2 of consumption) by new housing shells. We recognize that "pure" performance standards are inherently complex and difficult to enforce; as a result, the Model Plan offers alternative methods of compliance that do not require sophisticated analyses. Such analyses are needed to set the climate-specific performance targets underlying the standard as a whole, because there is no simple relationship between the energy-related characteristics of a building -- insulation levels, indoor areas, shape, size, etc. -- and its energy consumption. Deriving energy consumption estimates requires a computer program capable of accommodating hundreds of assumptions. Since the model must be able to evaluate not only the prototype houses used to set the standard, but also the original designs of building permit applicants, it must be very flexible. Unfortunately, this flexibility can only be achieved at the cost of increasing complexity. As explained below, however, mixed prescriptive and performance standards will provide a way to allow for both simplified and flexible compliance approaches.

We discuss in Appendix 10 the details of a method for projecting the energy consumption of a building. This method uses the DOE-2 program,56/ a sophisticated computerized heat flow model. While this method is the best choice for setting the standard, compliance can be demonstrated without subjecting each home design to computer analysis. The California residential building code57/ demonstrates how this can be done. California's energy performance standard includes several methods for verifying compliance, which vary from simple prescriptive checklists to increasingly complicated computer simulations. These different options trade off simplicity against flexibility -- builders willing to abide by prescriptive checklists will find compliance easier to establish, but the standard also permits unconventional approaches to achieving prescribed building energy performance levels.

The "prescriptive" compliance option is available to all houses with specified levels of insulation, glazing, and other measures. Draftsmen of a Northwest code should include more than one prescription for a given energy consumption target, so that -- for example -- design packages emphasizing passive solar features can compete with those relying more on high insulation levels.

Minor departures from these prescriptions (e.g., more ceiling insulation and slightly less south glazing) can be handled by a point system. Positive points are awarded for conservation in excess of the prescriptive standard, while retreats earn negative points. The Regional Council should design a point system based on simulations run on the DOE-2 computer model. Such a procedure already has been developed for the new California building performance standards.[58]

Other, larger variations in design can be handled by graphical techniques. The California Passive Solar Handbook[59] provides one such method, which is generally suitable for application in the Northwest. The actual curves are based on California climates, but the Regional Council can derive similar curves for Northwest climates.

Finally, the DOE-2 program itself, with fixed input assumptions as described in Appendix 10, can be used to evaluate innovative designs.

Different energy budgets will be needed for different climate zones in the region. At least two zones must be distinguished, separated by the Cascades. More may prove desirable, but the law of diminishing returns counsels against extensive efforts to subdivide the region for purposes of code design. For example, California regulators have identified 16 climate zones, but the state's building energy performance standards include only four significantly different climate-specific conservation prescriptions.

The model conservation standard for energy performance of new residential buildings should be as follows:

- For the climate zone west of the Cascades, the design energy consumption of a resistance-heated building shell shall not exceed 2 kWh per square foot per year,[60/] when calculated according to the methods outlined in Appendix 10. (For apartments, the whole building must comply on the average; each individual unit need not comply).
- Any housing unit that satisfies any of the following prescriptions in full shall be considered to be in compliance with the standard:

Prescription A

- Ceiling insulation shall equal or exceed R-49.
- Wall insulation shall equal or exceed R-27 considering only the area between wall studs. Doors shall have a resistance of R-13 or more.
- Floor insulation shall equal or exceed R-38 for suspended floors. Slab edges shall be insulated from the sill plate to a depth of at least four feet using insulation of resistance equal to or exceeding R-10.

- Basement walls shall be insulated to the same level as other walls when above grade. Below-grade basement walls shall be insulated on their exterior for their entire height with a material of resistance equal to or exceeding R-10.
- Windows shall have a conductance (U-value) of 0.31 or less. Windows with movable insulation shall use a U-value equal to the average of insulated and non-insulated U-values.
- Window area on non-south elevations shall be limited, cumulatively, to a total of ten percent of the floor area of the building.
- Window area on south elevations shall equal or exceed six percent of floor area.
- Windows and doors between conditioned and unconditioned spaces shall be caulked or weatherstripped. All vents leading to the outside shall be equipped with back-draft dampers or automatic dampers. Caulking or other permanent sealant shall be used on all exterior joints around window and door frames and between double or triple studs, between wall pads and floors, around penetrations in the ceiling such as fireplaces and flues, around openings in walls, ceilings, and floors for plumbing, electricity, and gas lines, around ducts and vents, and around all other such openings in the building

envelope. Vapor barriers of continuous, unpunctured polyethylene sheet or equivalent material shall be used in walls and ceilings. They should be installed over the inside face of framing or the inside face of the insulation, and sealed at edges and wherever penetrated by utility lines, plumbing, etc.

- Manufactured doors and windows shall meet applicable standards for air leakage reduction.[61/]
- Masonry and factory-built fireplaces and wood stoves shall be equipped with tight-fitting flue dampers with readily accessible controls. They shall be fitted with a combustion air intake drawing air from outside the building to the inside of the firebox. The air intake shall be equipped with a readily accessible, operable damper. Fireplaces shall be installed with tight-fitting metal or glass doors covering the entire opening of the firebox.
- Heat exchangers capable of providing a total of at least 0.5 air changes per hour of ventilation at an efficiency of 65% or greater shall be installed.
- Heating ducts shall be sealed at all joints and corners and insulated.

Prescription B:

To be developed by the Regional Council.

[Prescription B will describe a non-passive solar house which uses a combination of higher insulation and other measures to match the performance of a Prescription A house.]

As an alternate to precise compliance with the requirements of a prescriptive package, points tabulated from a list (to be developed by the Regional Council) may be earned for measures in excess of minimum compliance to compensate for points deducted for measures that do not meet minimum standards.

For climate zones east of the Cascades, similar cost-minimizing packages should be derived by the Regional Council. We expect that the Prescription A package will involve some thermal mass to avoid overheating on sunny winter days, and perhaps slightly better insulation.

ii. Program Implementation

(a.) Regulations and Incentives: A Coordinated Approach

As indicated above, extensive changes in Northwest building codes are a crucial part of an effective regional conservation program. Efficiency-oriented building codes reduce planning uncertainty by allowing forecasters reliably to predict that, once the codes become effective, almost all new structures will meet specified consumption targets. In addition, the new performance standards ensure both equitable distribution of conservation benefits and consumer protection; all buyers and renters of new housing will be assured manageable residential energy costs. Meanwhile, the region as a whole will be securing the largest possible cost-effective conservation and solar resource.

Standards should go hand in hand with financial incentives, however. Increased first cost is a significant barrier to the acceptability of performance standards, even though the Model Plan recommendations will substantially reduce life-cycle costs of housing.62/ Builders will be concerned with standards that raise the purchase price of houses, even though these costs are more than offset by the value of energy savings. Much of this concern is based on the possibility that higher first cost will prevent some potential home-buyers from qualifying for mortgage loans.

At present, decisions to award housing loans are based on formulas that require mortgage and tax payments to be at or below a fixed fraction of the borrower's monthly income. Energy bills are not included in the housing cost calculation made by lenders, so anticipated reductions in utility bills from conservation do not help buyers qualify for loans. Efforts are now underway to change this misguided policy. Even if those efforts ultimately succeed, however, the Model Plan's proposal for performance standards, standing alone, would attract significant near-term opposition from the home-building industry.

However, a combined program of standards and incentives can respond to those concerns without sacrificing cost-effective energy savings. Under the Regional Act, standards recommended by the Regional Council must be "economically feasible for consumers, taking into account financial assistance made available to consumers [by the Bonneville Power Administration]." § 4(f)(1), 16 U.S.C. § 839b(f)(1). Thus, BPA incentives will lay the foundation for more stringent standards than would be possible in the absence of such payments. BPA, and the region's ratepayers, have an obvious stake in paying the incentives; anemic standards will push up energy consumption unnecessarily and force substantial utility investments to meet rising demand. Offsetting all the increased construction and inspection costs that result from the Model Plan standards is much cheaper than providing for increased demand; thus, BPA and its ratepayers are better off if they simply pay those costs in full. We calculate the average payment at about $3800 per home region-wide; BPA will be buying conservation, under the proposed program, at about 1.6 cents per kilowatt-hour.*

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*Incentives should also be available for beating the performance standard. It is certainly possible to design homes (continued on next page)

These incentives will make the Model Plan standards for new buildings more politically palatable, speeding implementation; by the same token, the standards are crucial to ensuring that the incentives are widely and equitably distributed. Incentives without standards would tend to flow disproportionately into new housing slated for non-rental, upper-income use.

(b.) Choice of Fuels for Heating New Houses: The Importance of a Non-Discriminatory Policy

Performance standards, and accompanying incentives, should apply to all new housing shells, regardless of choices ultimately made about heating fuels. Some have argued that there is no reason for electrical energy policy to address new oil- and gas-heated houses, and no justification for having electric ratepayers pay for efficiency improvements in such houses. But the alternatives are much worse, from the standpoint of both ratepayers and the goals of the Regional Act.

A number of important advantages are secured by ensuring that _all_ new housing meets performance standards, and qualifies

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with heating requirements lower than those assumed in the Model Plan; a payment schedule should be established for such designs that either offsets additional construction costs or pays the value of the savings to the region, whichever is less.

for financial incentives. Looking first solely at the issue of standards, recall that fuel-switching is entirely possible over the long run. Thus, building leaky gas-heated houses not only wastes gas, but also presents the risk that electricity may be wasted in the future if the occupant changes fuels.

There are good arguments for making electric utility incentives apply to all buildings (regardless of heat source) as well. If only electrically-heated houses are eligible for payments, the incentives will induce more people to use electric heat (and electric hot water), raising the cost of the electric utility system. Note that the extra cost of providing incentives to fossil-fuel-heated new houses is not exorbitant, because the great majority of new houses are expected to use electricity anyway. BPA expects only about one-fifth of new houses to heat with fossil fuels under a no-incentive scenario. Again -- trying to exclude such houses from the incentive program may simply ensure that they install electric rather than gas heat, leaving ratepayers worse off -- they then must pay not only the incentive, but also the cost of supplying the electric heat that the building owner elected in order to qualify for the incentive. Put differently, an incentive-aided gas-heated house is cheaper to ratepayers than an incentive-aided electrically-heated house. A discriminatory policy, limited to electric heat, would ensure proliferation of the "more expensive" houses.

Finally, excluding fossil fuel-heated houses from a building envelope incentive program leads to illogical and unfair results. Consider the effects on the electric system of the following two actions:

(1) A consumer builds an electric-heated house with the best passive solar and insulation features, meeting the Model Plan energy budget. This house clearly qualifies for incentive payments.

(2) The consumer then replaces the resistance-heating system in the house with a gas furnace. This action clearly benefits electricity ratepayers, and certainly should not be discouraged by compelling a return of the initial incentive payment.

Yet a discriminatory incentive policy means that consumers cannot go directly to step (2) at the outset; they must first install an unwanted electric heat system. This is simply absurd.

(c.) An Interim Incentive Program

While regulatory actions probably will not take effect for some months after promulgation of the Regional Council's Model Conservation Standards in April 1983, there is no reason to delay the incentive part of the new housing efficiency program. Prompt implementation of an incentive program will prevent the continued construction of electricity-guzzling houses, which will then be candidates for costly retrofits. As in the post-standards program, BPA payments should be designed to offset increased construction costs of houses that meet the Model Plan standard, compared to costs associated with current construction practices in the region.

Houses constructed after such a program is in place should not be eligible for the retrofit weatherization program (which purchases the same conservation at a higher price). New houses should be eligible for weatherization payments,* but only for performance exceeding that of a "minimum compliance" house. This rule avoids inadvertent creation of incentives for the construction of highly inefficient houses that then qualify for large retrofit rebates, as has occurred in the TVA service area. Of course, once more stringent building codes have been enacted to supplement the incentive program, such abuses will not be possible.

(d.) Infrastructure Development

Administration of the Model Plan's proposed standards and incentives will require a substantial increase in the number and quality of inspections of houses under construction. Local governments clearly will have to expand their staffs of building code officials; also required will be a major training program to educate inspectors and builders on what is required by the new codes, how to inspect for proper installation of insulation, heating systems, and leak-plugging measures, and how to use the simplified compliance techniques (the prescriptive packages and the point system). Expert central staff also will be needed to evaluate permit applications that incorporate innovative designs, which must be evaluated through the more complex computer-based techniques.

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*Consider, for example, a "minimum compliance" home first purchased by an energy-waster that subsequently is sold to a purchaser who values increased efficiency.

Such a training effort should not be a daunting prospect, however. The California Energy Commission, with the cooperation of the California Association of Building Officials (CALBO) and the California Council of the American Institute of Architects, recently developed and initiated a statewide training program for code officials and building designers. The building code that forms the focus of that program is comparable in every respect to the Model Plan proposals. The cost of the Northwest training programs should be met by BPA, as an overhead cost of the overall conservation effort. BPA should similarly underwrite the additional staffing and inspection responsibilities that local government will be assuming. As noted earlier, these expenses were incorporated in the Model Plan's cost projections for the new residential buildings program.

The importance of adequate training cannot be over-emphasized. An Oregon study of current building code enforcement found that the primary cause of failures to comply was insufficient training for builders and inspectors.[63] Ignorance of the specifics of the standard also creates needless opposition to its promulgation and implementation: no one can be expected to support something he doesn't understand.

One key strategy for successful training, enforcement, and educational programs is to involve the affected parties in the technical design of the regulations. The California Energy Commission profited from the involvement of CALBO representatives on the advisory committee that helped draft the state's performance standards; similarly, representatives of affected groups should be involved in technical decisions about the format and structure of the new Northwest standards, to ensure that their concerns are addressed at the outset.

e. Water Heating, Appliances, and Lighting: Inventory of Measures

i. Hot Water

Hot water energy use is the sum of two terms: (1) standby losses from a heated supply of water, and (2) heating energy required to warm water for various end uses. The "heating energy" term can be further divided into three categories: showers and miscellaneous uses, clothes washer usage, and dishwasher usage. All of these can be cut back substantially from levels typically recorded at present.

Insulation of holding tanks and water pipes greatly reduces standby losses. New water heaters that satisfy California efficiency standards have standby losses about one-half those typical of earlier models, due to the use of thicker insulation.64/ Older water heaters can be retrofitted to achieve comparable savings. But considerably greater energy savings are obtained by optimizing the thickness of insulation, as described in section B.2.a.i above for ceiling and floor insulation.

The process of optimizing tank insulation levels involves trading off the cost of increments of thickness with the value of the marginal savings from each increment. This calculation produces substantially higher optimal retrofit insulation levels and lower ultimate energy consumption, compared with current practice. The actual optimum of R-90 for resistance water heaters and R-60 for heat pumps[65/] is physically infeasible; however, because of the diminishing returns from additional insulation, relatively few savings are foregone by stopping, say, at R-19. The high theoretical optimum for insulation indicates that it is worth some effort to improve the design of water heater insulation jackets. Foam insulation, with its higher R-value per unit of thickness, may be preferable to the more widely-used fiberglas materials.

Even conventional R-7 retrofits produce larger savings than have been predicted, however, because the initial levels of insulation are lower than one would expect. The "expected level" of pre-retrofit water heater insulation typically is R-7, based on two inches of fiberglas at R-3.5 per inch. But the two inches is a "nominal" rating; actual insulation frequently is thinner. Furthermore, the R-3.5 per inch rating is based on the quality of insulation used in home construction; water heaters typically use less dense insulation with a resistance of only R-1.4 to R-1.9 per inch. As a result, the measured insulation on electric water heaters -- nominally R-7 -- is closer to R-2 or R-3, and is R-2.63 on average.[66/] In addition, water heaters typically are not insulated on the bottom, and frequently contain thermal short circuits, e.g., between the stored water and the floor through the legs. Another source of heat loss is conduction or convection into the first few feet of water pipes connecting the tank to the water inlet and outlet. As a result, adding R-7 insulation to the whole tank, including the bottom, insulating the pipes for the first few feet, and adding anti-convective loops to the pipes decreases the overall U-value by 65-75%, reducing standby losses from 1200 kWh/yr to 400 kWh/yr. Adding R-19 insulation instead of R-7 will reduce heat losses further, to 200 kWh per year. The extra savings compared to R-7 -- 200 kWh per year -- have a present value of $180, compared to an additional cost of $5.[67/] Thus, this additional step toward optimum levels provides significant savings at a very low cost.

The overall cost-effectiveness of the insulation measure is extremely attractive. The total present value of savings from the R-19 retrofit blanket, pipe insulation, and thermal trap is $890, while the cost is less than $75. The payback period is less than one year in length. Thus, the current policy in many conservation programs of distinguishing between water heaters located in heated and unheated spaces is totally unjustified. Even if savings were reduced tenfold for water heaters located in heated spaces, insulation would still be cost-effective. And, as demonstrated below, the two cases actually do not differ that dramatically in the conservation potential they afford.

There are only two factors differentiating savings from insulation of indoor and outdoor water heaters. First, since the temperature difference indoors between stored water temperature and ambient temperature is smaller than for outdoor locations, the standby loss rate is proportionally smaller. This effect is not large, as shown below.

Standby temperature for an average electric water heater is about 145°F.[68/] Ambient temperature for an indoor location is about 70°, so the temperature difference is 75°F. For outdoor locations, the average ambient temperature may be as low as 50°F, yielding a temperature difference of 95°F. This increases standby losses (and thus savings) for outdoor heaters by 25%. But the 1000 kWh savings predicted above for R-19 retrofits assumed a 70° ambient temperature, so retrofit insulation would save 1250 kWh for outdoor water heaters, increasing the cost-effectiveness of the measure still further, while leaving unimpaired the case for indoor insulation.

The second source of savings degradation reflects the value, for space heating purposes, of some of the heat from an indoor unit. The portion of conserved heat which performs this function must be deducted from the energy savings, if electric space heat is also used.

But this fraction is not large, and should be getting smaller in the future. Water heater waste heat is useful only if space heating is needed during the hours when the heater is losing heat. This is certainly not true in the summer. As the house is weatherized, it becomes untrue as well during sunny winter days, during the night if thermostats are set back, and during the spring and fall. Estimates of the effectiveness of internal loads in reducing heating needs, performed for the U.S. Department of Energy,[69] show that less than one-half of internal loads actually work to reduce heating needs. For increasing degrees of weatherization, the fraction of waste heat that is usable decreases. And if a heat pump is used for space heating, the value of internal heat is reduced by a factor of two, since heat pumps recommended by the Model Plan are at least twice as efficient as resistance heaters.

Thus, projected savings from indoor water heater insulation should be decreased by no more than 1/4-1/2 to account for expanded space heating needs, resulting in a savings estimate of about 500-750 kWh/yr. This is still highly cost-effective, and tanks located in heated spaces should certainly be wrapped. Note that a reduction in internal loads has a dramatic effect on cooling energy use, partially offsetting increases in space heating needs for houses with air conditioners. In a weatherized house, the cooling load is almost entirely attributable to internal heat gains from appliances and sunlight. Reducing internal loads reduces or eliminates cooling energy use, and increases thermal comfort in non-air conditioned homes (reducing the likelihood that its occupants will ever buy an air conditioner).

In addition to reducing standby losses, efforts to improve water heating efficiency must address end uses of water. Household water use has four major components: showers, other personal uses, automatic clothes washers, and dishwashers. Conservation measures are available for all four.

For showers, low-flow showerheads can reduce water use at no loss in comfort. There is a wide range of showerheads currently available that can reduce water use from the present average of roughly 5 gallons per minute (gpm) to 2-3 gpm, for a savings of about 600 kWh/yr.[70/] Costs are trivial: $5-$15 per showerhead, compared to a present value of over $750 for 15 years of savings. Further reduction to 1/2 gpm is possible with a $400 compressed-air showerhead.[71/] This device uses a mechanical compressor to achieve a heavy-feeling shower with only 1/2 gallon per minute of water flow. The extra savings -- 420 kWh/yr, assuming resistance water heat -- have a present value of $540 for fifteen years of operation. Thus, even this extreme measure will be cost-effective for resistance water heaters. In heat pump or solar households, such a device would be cost-effective for relatively large families whose members took frequent showers, or any household in which water use is at least twice as high as average. Roughly 10% of electric water heater customers fall into the category of twice-average water use,[72/] and would thus be candidates for this measure even if they used heat pump or solar water heaters.[73/]

Many other personal uses of water can be reduced by low-flow plumbing on all faucets. Savings are harder to quantify, but costs are so low that the measure is indisputably cost-effective.

For the appliance uses of water, informed selection among different models can serve as a conservation measure. Choosing the lowest water use appliance currently available can save 30% of related water heating energy. Energy labels include the effect of hot water use, so it is easy to determine the savings potential from more efficient appliances.*

Finally, energy use of the entire system can be cut by 50% or more through the use of heat pump water heaters or active solar systems. Since both of these measures are more costly than those described above, they should be applied last in cost-effectiveness calculations. In other words, projected savings should be subtracted from average electricity requirements in the aftermath of installation of the water conservation and heater insulation measures. Achievable savings are about 1500 kWh/yr for a heat pump or solar system saving 50% of water heating energy, or 2100 kWh/year for a solar system that achieves 70% savings (which is more typical of a unit installed east of the Cascades). At 10¢ per kWh, the present discounted value of the savings is $1350 over the assumed ten-year life of a heat pump, or up to $4700 over the life of a 30-year active solar system. These cost estimates are ceilings on the amount of money that can be spent cost-effectively on heat pumps and solar.

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*However, it should be noted that the federal test procedures assume more use of the appliance than can be justified by the data (see footnote 64). Actual water use can be determined through the procedure used in forecasting water consumption energy needs (see Appendix 9).

Costs for the heat pump water heaters recommended by the Model Plan vary from about $700 to $1200 at present.[74/] In many cases, one can subtract from these estimates the approximately $200 that would otherwise be required for installation of a conventional high-quality resistance water heater. Heat pump costs should also decline in the future under a Northwest conservation program, as explained below.

Our calculations assume an average water heater heat pump efficiency (COP) of 2. This is in good agreement with the results of an Oak Ridge National Laboratory study of the field performance of 85 heat pump water heaters installed in 1979 and 1980, which measured an average COP of 1.93.[75/] Current and future efficiencies should be higher, because (1) the product is improving over time (heat pump water heaters were relatively new and untried in 1979); (2) efficiency standards can be used to upgrade average heat pump efficiency; and (3) the Oak Ridge study assumed a water temperature of 140°, while safety and conservation concerns argue for a lower water storage temperature, which produces a higher efficiency.

It could be argued that cold air output from water heater heat pumps installed indoors will create additional space heating-related electricity needs, reducing the overall efficiency of electricity use for these units. But this argument is misconceived, for two reasons. First, many households with indoor electric water heaters do not use electric space heat, so increases in heating energy needs will not boost electricity consumption. More important, most of the studies that show reductions in overall system efficiency assume that the house is resistance-heated. But an optimal all-electric Northwest house will use a heat pump for space heating, so a Btu of extra space heating attributable to the heat pump water heater will only result in 1/2 Btu or less of electricity consumption for heating. Thus, during the winter, water heating is effectively being accomplished by a two-stage heat pump, and the overall efficiency loss is minimal. Finally, it should be noted that several tests of heat pump water heaters have found efficiencies of 2.5 to 2.7,[76/] while we assume an efficiency of only 2.0. This assumption represents an intentional conservatism in the analysis.

In sum, heat pump water heaters pass the cost-effectiveness test, even using the highest cost estimate, awarding no first cost credit for down-sizing the heat pump (see below), projecting realistically low water usage (assuming 100% saturation of water conservation measures), and assuming conservative heat pump efficiencies. Heat pumps are expected to perform about equally well in all parts of the region. While their COP is dependent on temperatures, this dependence is relatively linear,[77] so the effect of lower winter temperatures east of the Cascades will be offset by the effect of higher summer temperatures.

Solar water heating systems vary widely in cost, depending on system design and on whether the system is installed by the user or by a contractor. The Oregon Solar Energy Industries Association pegs typical user installations at $1500-$2000, in 1982 dollars; contractor installations range from $3500-$5000 (the range in California, where sales volumes are higher, is $2500-$3000). However, contractor-installed units generally have been sized for families at the high water-use end of the spectrum. Smaller units sized for average families will be cheaper, although not proportionally cheaper.

The larger solar units generally are cost-effective for the relatively high water uses to which they are tailored. They should generally be cost-effective in all climates for post-conservation water uses, provided that users can effect installation and/or that contractor costs for the smaller systems can be reduced somewhat. From the standpoint of the individual, of course, the 40% federal tax credit for solar investments is an important additional consideration, which is not reflected in the price figures summarized above.

Most heat pump water heaters and solar systems are oversized and thus overpriced at present, because installers rely on surveys that significantly overestimate both water heater size and energy consumption. The average electric water heater holds 43 gallons, not 55 or 80 as often assumed, and water use for a typical household is 38 gallons (of 140° water) per day, in contrast to frequently cited levels of 64 to 80 gallons per day.[78/] These figures refer to existing uses; after the water conservation measures described earlier are applied, water use and optimal tank sizes will decline another 30%. These faulty water use assumptions have led a number of tests (including the federal water heater test procedure) to project excessive water use. More accurate data suggest that first costs for both heat pump and solar water heaters can be reduced by designing units in smaller sizes.

With proper sizing, it will frequently be cost-effective to employ both a heat pump and an active solar system for water heating. At least one company is curently marketing a combined system that offers 75% savings in energy.[79/] The total cost of the system is approximately $2800.

Again, both solar systems and heat pumps are most cost-effective for relatively large water users. Such users probably will dominate initial participation in regional water heater programs, producing savings that are even larger -- and more cost-effective -- than indicated by the "average" results presented above and in Appendix 9.

ii. Appliances

Although frequently overlooked in utility conservation programs, appliance efficiency improvements can effect large savings at low costs. Most appliances use substantially more electricity than an "optimized" model, and savings of 50 to 75% are technically feasible and cost-effective in most cases.[80,81]

Much of this conservation potential can be achieved simply through comparison shopping among existing models on sale in the region. For refrigerators, clothes washers, and dishwashers, savings of approximately 30% from current average consumption can be realized by selecting the most efficient model of a given feature class.[82] For air conditioners, the potential savings approach 50%.[83] Other appliances such as freezers and clothes dryers offer smaller but non-trivial savings potentials.

The cost-effectiveness of this comparison shopping exercise is impressive. More efficient refrigerators cost no more, on the average, than the typical energy-wasting models.[85] Similar trends were observed in an NRDC survey of clothes washers and dishwashers. Air conditioners cost about 25-40¢ extra per watt saved;[86] it is cost-effective to go to the highest available efficiency wherever annual usage exceeds 450 hours per year.[87] Thus, the existing market offers significant opportunities for inexpensive conservation.*

But re-designed appliances could often save more than twice as much energy if they were constructed to achieve minimum life-cycle costs. An optimal refrigerator would use one-third as much electricity as a typical model, or half as much as the best available U.S. refrigerator.88/ Japanese refrigerators already achieve most of this "theoretical" potential.89/ The additional cost of the high-efficiency refrigerators is about $150, compared to savings with a present value of $550 or more.90/ Freezers can be re-designed to achieve comparable savings (65%-75%), since the technologies and conservation measures are similar.

Electricity consumption in ovens can be improved by about 10% using conventional means, such as insulation.91/ But re-design of the heat transfer mechanism to make better use of thermal radiation ("bi-radiant ovens") can save 60% of oven energy use, while also reducing the time needed for cooking.92/ This and other simple conservation measures, such as reducing thermal mass and increasing insulation, can save 40% of total range energy use (both surface units and oven).93/

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*In addition, although the Model Plan forecast does not assume them, significant energy and cost savings can be achieved by switching fuels for cooking and clothes drying from electricity to gas.84/

iii. Lighting

Residential lighting is provided almost exclusively by incandescent light bulbs, which constitute an extremely inefficient source of illumination. Fluorescent lighting is typically two-thirds to three-fourths less energy-intensive than incandescent lighting for a given light output in residential brightness ranges. Replacing heavily-used incandescent fixtures with fluorescents could therefore be a very significant conservation strategy. As an alternative to tube-type fluorescents, light-bulb shapes and special incandescent bulbs with efficiencies in the same range as fluorescents will be on the market in late 1982 or 1983.

Some people have argued that fluorescent lighting poses a health hazard, compared to natural lighting. This concern stems from a belief that artificial light is deficient in ultraviolet (UV) and that UV is inherently healthful. But incandescent lights are even lower in UV output than fluorescents. Thus, regardless of the validity of the link between artificial lights and disease, replacing incandescents with fluorescents should not introduce new problems. Additionally, "daylight" fluorescent lights are claimed to resolve all alleged health problems associated with conventional fluorescent and incandescent lights.

Other commonly expressed objections to fluorescent lighting include bad color rendition, flicker, noise or hum, and excessive glare. All of these can be avoided. Complaints associated with color and flicker are attributable to the use of the wrong color of fluorescent light for residential applications. Most offices use cool white fluorescents, which are designed to blend well with sunlight. The resulting color rendition is often aesthetically objectionable under lower illumination levels typical of residences. Warm white fluorescents are designed to blend with incandescent lights, and look much more normal in residential use.* They are no less efficient than cool whites, and cost the same. However, at present, they are not quite as widely available. Warm white fluorescents flicker much less than cool whites; indeed, they are generally comparable to incandescent bulbs in measured flicker levels.

The noise problem from fluorescent lights is caused by the ballast, a transformer that is needed in the fixture to allow the light to function properly. Ballasts are designed to meet various noise standards; devices designed for residential use should be inaudible. Silent fluorescent fixtures suitable for the home are currently available, but selective shopping may be required to find them. Silent solid-state ballasts will soon be available, which increase lighting efficiency and permit dimming. The light-bulb-shaped fluorescents will employ solid-state ballasts.

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*Other fluorescents even more closely duplicating incandescent color rendition are available. Warm white deluxe adds more red than ordinary warm white bulbs. "Incandescent fluorescent" tubes provide even better matched colors. Both of these models are less efficient than ordinary warm white, but are still much more efficient than incandescent light bulbs.

The glare problem is primarily a function of lighting levels. Since most fluorescent lights are used in commercial buildings, where lighting levels greatly exceed those in the home, many residences install much higher wattages of fluorescent lighting than they need. Fluorescent lighting will work as a conservation measure only if bulbs are replaced on the basis of equal light output.

Fluorescent fixtures make most sense in rooms that frequently require artificial light for extended periods. Because such fixtures carry a substantial installation cost, they should be added only where existing lights are used relatively frequently (one or more hours per day). Light-bulb-sized fluorescents, by contrast, will be cost-effective for a much broader range of applications;[94/] they do not require the replacement of existing fixtures.

f. Water Heating, Appliances, and Lighting: Regulatory and Incentive Policies

Some analysts continue to argue that rising electricity prices will secure all possible cost-effective efficiency improvements in new appliances, while swiftly eliminating inefficient models from the market. As earlier Model Plan sections have demonstrated, the record is flatly inconsistent with these claims. Reliable and prompt realization of appliance conservation potentials cannot be entrusted to a mythical "free market."

The discussion below begins with proposed efficiency standards for electricity-intensive appliance categories, designed to remove the most wasteful "guzzlers" from the Northwest market and to spur technological innovation in new models. We then turn to other policies, including incentive programs, designed to secure additional improvements in the efficiencies of appliances, water heating, and lighting.

i. Appliance Efficiency Standards

Appliance efficiency standards are not a new idea; they have been in force in California since 1976. Like building performance standards, they require a standardized test procedure, as well as target efficiency levels. Test procedures already have been developed for most appliances by the National Bureau of Standards, as part of a federal appliance efficiency program. Model regional standards can be designed most easily by reference to these test procedures.

Appliance standards should be staged, to allow a smooth transition to long-run efficiency goals. Regulators should begin with relatively inexacting standards, to be effective one year after promulgation. This interim standard would be based on the best efficiencies currently available on a widespread basis on the market. The final target standard, effective three to five years from promulgation, should be based on designs that minimize life-cycle cost, using currently identifiable technologies. These technologies need not be in widespread use at present -- they need only be feasible for implementation by manufacturers. The three-to-five-year time lag will allow manufacturers sufficient time to redesign and retool. Second stage standards currently in effect in California provided a three-year lag, while proposed federal standards (since withdrawn by the Reagan Administration) envisioned a five-year lag. Second-stage standards for the Northwest should be designed cooperatively with California regulators, with the goal of developing a uniform Pacific regional standard. Specific recommendations include:

- Standards for heat pumps should be keyed to test temperatures of 47°F and 17°F. Heat pumps initially should have an efficiency of 3.0 or greater at 47° and 2.1 or greater at 17°. Final standards should be at least 4.3 at 47° and 3.1 at 17°,[95/] with exact levels to be determined by life cycle cost analysis.
- Standards for water heaters, like their California counterparts, should be based on standby loss rate and recovery efficiency.[96/] Standby loss rate should be no greater than 150 kWh per year (or 1 watt per square foot) for a 40 gallon water heater. This standard should vary

with size. Recovery efficiency should be at least 2.0 for the initial standard, with a final level to be determined by life-cycle cost analysis.

- Refrigerator standards for the short term should be based on the best efficiencies currently available:

  650 kWh/yr for 15 cubic foot non-automatic defrost
  1000 kWh/yr for 18 cubic foot automatic defrost
  1400 kWh/yr for 22 cubic foot side-freezer

  Long-term standards should be based on minimum life-cycle cost: this will result in standards of about 250, 450, and 650 kWh/yr, respectively. Standards should be adjusted to allow larger (but not proportionally larger) consumption for larger size, as is done in California.[97]

  Refrigerator standards should be given in kWh/yr, which is a more understandable unit than the energy factor proposed in draft federal Department of Energy standards.

- Freezer standards should follow the same format as refrigerator standards, with separate standards for chest and upright freezers, and for manual and frost-free. Initial (one-year) standards should be based on the best efficiencies currently marketed, while long-run efficiency targets should be based on similar percentage savings compared to refrigerators; (*i.e.*, 65%). Freezer standards should also be given in kWh/year as a function of size.

- Air conditioner standards will minimize costs for a typical air conditioner installed in a climate zone requiring air conditioning. Short-run standards can be set equal to the California standards currently in effect: EER of 8.0 for central air conditioners and 8.7 for room units.[98/] Long-run standards will approximate the best efficiency levels currently available: EER 13 for central air conditioners, and possibly slightly lower for room units.
- Standards for clothes washers and dishwashers should, at least at present, be based on the best efficiencies currently on the market. Efficiency standards for these appliances affect the amount of hot water they demand from the water heater. The Regional Council should fund a study of additional water conservation technologies that go beyond what is currently offered.
- Long-run standards for ranges and ovens should be based on the addition of insulation, thermal mass reductions, improved thermal transfer efficiency, and the use of features equalling the performance of the bi-radiant oven. Energy factor for the oven should be greater than or equal to 35, representing a 73% reduction from existing oven energy consumption. Energy factor for the surface unit should equal or exceed 86%, for an 11% savings compared to conventional burners.

ii. Program Implementation

For purposes of program design, it is useful to distinguish among three types of conservation measures applicable to water heating and appliances. Lighting efficiency for houses must be treated in a class by itself.

The first class of measures includes installations that are overwhelmingly cost-effective. Low-flow plumbing and water heater retrofits are such good investments that it is not worth worrying about calibrating utility payments. BPA can pay full program costs, including installation, and still be buying kilowatthours for less than one cent each. The agency should do precisely that.

The second class of measures -- the largest class -- includes measures such as efficient appliances for which investment costs are somewhat higher, although savings still exceed costs by a wide margin. Appliances in this category include refrigerators, freezers, clothes washers, dishwashers, televisions, ranges and ovens, and dryers. Here, BPA should establish a rebate program under which the buyer is rewarded on the basis of lifetime kWh savings compared to average use.* For an appliance lasting 18 years,** BPA could afford by the net avoided cost criterion to pay the buyer $1.50 per kWh of annual savings. However, if this criterion were used, it would provide excessive incentives: the buyer of a 550 kWh/yr refrigerator would receive a rebate exceeding the total cost of the appliance. Rebates should be keyed to the extra cost of greater efficiency, so that the rebate per kWh saved is only slightly larger than the extra first cost per kWh saved. This level of rebate provides the right incentive -- marginally lower first cost for the more efficient units -- without requiring excessive BPA investment.*

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*Utility incentive programs are well-established in other regions; among the companies that have been involved are Pacific Gas and Electric, Texas Power and Light, and Northern States Power. See, e.g., Electrical World, May 1981, p. 11.

**Appliances normally last from about 12 years to 24 years.

Keeping incentive payments modest avoids commonly cited concerns about appliance incentive programs -- e.g., that they will increase electricity consumption by creating much higher saturations of some appliances. The goal is not to subsidize the purchase of additional appliances, but to ensure that appliances that would have been bought or replaced regardless of the program achieve high efficiency.

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*Appropriate incentive payments can be approximated by looking at the extra cost and savings estimates of the minimum life-cycle cost appliance and a threshold level appliance somewhat more efficient than average. For example, for refrigerators, a threshold efficiency level might be 1000 kWh/year, the proposed short-range standard for the most popular class of refrigerators. This level is significantly better than the 1300 kWh/year average energy use of refrigerators.[99/] To go from this level to the efficiency of a Japanese refrigerator costs $100 and saves an additional 450 kWh/year compared to the standard. The cost of conserved energy is thus 22¢ per kWh/year.

Thus, the rebate should be slightly higher, or about 25¢ per kWh/year of savings, starting from a "base case" of 1300 kWh/year. It would take an energy consumption of 1000 kWh/year or less to trigger the rebate. The rebate could be used to spur the substitution of partial automatic defrost units for fully automatic units, while also encouraging the purchase of high-efficiency frost-free models.

Incentive payments can and should be offered before appliance standards become effective, but they should be awarded only for appliances that equal or exceed the efficiency requirements contemplated for the standards. Higher efficiencies should be rewarded with higher payments; the goal is not to cluster purchases at the minimum efficiency levels required in the standard, but to encourage consumers -- and manufacturers -- to do better.

The rebate program will be most effective if the incentive is directed at both buyers and sellers of efficient appliances. The total payment might logically be split between the appliance dealer and the consumer, inducing both to concentrate attention on the most efficient units. At present, salesmen have no special incentive to sell energy-efficient appliances. Surveys by the Pacific Gas and Electric Company and the Natural Resources Defense Council have shown that salesmen frequently downplay the importance of energy efficiency, and make no effort to steer buyers toward efficient models.[100/]

The third category of measures includes items which have a relatively high cost of conserved energy: heat pump water heaters, high-efficiency heat pumps, and solar water heaters.

For these appliances, the incentive program should be analogous to its weatherization counterpart: all cost-effective items qualify for partial rebates and zero-interest loans; items that BPA does not deem cost-effective receive partial financing at levels that permit BPA to purchase saved energy at the agency's net avoided cost.

We move finally to lighting efficiency retrofits, which are complicated by the possibility that increased efficiency will simply lead to more illumination, with no net energy savings. Utilities can prevent this by instructing auditors to determine initial lighting levels (in watts of light bulbs observed in use during the audit). BPA should finance conversion to high-efficiency sources, provided that the new wattage does not exceed 40% of that observed by the auditor.* Where fluorescent light bulbs can be installed as retrofits, the auditor should simply do so, free of charge.

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*This ensures that illumination levels remain roughly constant, because -- as explained above -- fluorescents and high-efficiency incandescents require substantially less wattage to provide service equivalent to that of the conventional incandescents they replace.

Residential Sector: FOOTNOTES

1. Willett Kempton and Laura Montgomery, "Folk Quantification of Energy," Institute for Family and Child Study, Michigan State University, 1982. To be published in Energy - The International Journal.

2. Conservation measure costs are taken from data on Portland and Seattle costs for 1980 and inflated by a factor of 1.19 to obtain 1982-dollar costs. These data were derived for new houses, but comparable costs from regional utility data concerning retrofit installations are lower. Thus we use the new-house costs for applicable measures to represent new and retrofit applications. Data are obtained from "Installed Costs of Energy Conservation Measures for AIA Research Corporation." NAHB Research Foundation, Rockville, Maryland, June 1980. Calculations deriving costs per house appear in Appendix 6.

3. California regulations on formaldehyde emissions are too stringent to be met by any existing installation. See "Final Committee Report on Proposed Amendments to the Insulation Quality Standards," California Energy Commission, March 18, 1981, pp. 6-17, for a discussion of the safety problems with U-F foam. The regulations are in the California Administrative Code, Title 20, Section 1553(m).

4. "A Field Study of Moisture Damage in Walls Insulated Without A Vapor Barrier," Seton, Johnson, and Odell, Inc., George Tsongas, Applied Social Research, Inc., for Oregon Department of Energy, 1979. ORNL/Sub-78/97726/1.

5. See note 2 above.

6. See D. Goldstein, et al., "Energy Budgets and Masonry Houses: A Preliminary Analysis of the Comparative Energy Performance of Masonry and Wood-Frame Houses." Lawrence Berkeley Laboratory, LBL-10440, 1980. These data are adjusted for inflation as in note 2 above.

7. See Appendix 7 for derivation of floor R-value.

8. See note 2 above.

9. Note 2 above indicates that triple-pane cost $2.14 more than double-pane in Portland and $2.52 in Seattle in 1980. Double-pane costs exceed those of single-pane windows by a comparable amount. Price lists for a national manufacturer of premium windows (Andersen) also shows comparable increments in cost for an additional pane, even though the overall costs of the window is much higher.

10. Quad pane windows, manufactured by Weather Shield Manufacturing, Inc., of Medford, Wisconsin, are advertised in Solar Age, September 1981.

11. See "Economic Analysis" of Proposed Building Energy Performance Standards, U.S. Department of Energy, Office of Conservation and Solar Energy, Office of Buildings and Community Systems, Appendix A, for calculations of the savings potential from shutters.

12. In Seattle, the daily solar radiation incident on a north-facing window is 412 Btu/ft^2 for November, 335 for December, 363 for January, 604 for February, and 906 for March, including the effect of cloud cover (T. Kusuda and K. Ishii, "Hourly Solar Radiation Data for Vertical and Horizontal Surfaces on Average Days in the U.S. and Canada," National Bureau of Standards, NBS Building Science Series 96, 1977). Transmitted solar radiation is about 0.65 of incident radiation for double glazing, due to occlusion of light by the frame and sash, reflection, and absorption, so solar heat gain for the month is 8030 Btu/ft^2 for November, 6750 for December, 7310 for January, 10,990 for February, and 18,260 for March. In contrast, losses per month are respectively 7200, 8940, 9770, 7480, and 7620, assuming U = 0.49 and using normal degree days for the month ("Local Climatological Data, 1980, Seattle, Washington," U.S. National Climate Center, Asheville, N.C.). Thus, during the months of December, January, and February, which account for over 75% of the annual heating load of a Model Plan house (see note 34), the best south-facing double glazing loses 1,140 Btu/ft^2 more than it gains. In contrast, triple glazing, which reduces solar gains by about 12% but reduces heat losses by 37%, is a net winner in all months of the year.

13. See David T. Harrje, "The House Doctor Approach," Princeton University Center for Energy and Environmental Studies (CEES), presented to the NBS-CSA Conference on Optimum Weatherization, Washington, D.C., December 1980; and D. Harrje, et al., "Isolating the Building Thermal Envelope," Princeton CEES, presented at the Thermosense III Conference, Society of Photo-optical Instrumentation Engineers, Minneapolis, September 1980; and "The House Doctor's Pharmacopoeia," Lawrence Berkeley Laboratory LBL-12742, 1981.

14. Id.; see also M.H. Sherman, "Air Infiltration in Buildings," Lawrence Berkeley Laboratory, LBL-10712, 1980.

15. A. V. Nero, "Airborn Radionuclides and Radiation in Buildings: A Review," Lawrence Berkeley Laboratory, LBL-12948, 1981. Submitted to Health Physics.

16. See, for example, "Draft Environmental Impact Report, Proposed Residential Building Standards," California Energy Commission, March 1981, pp. 33-50, and "Indoor Air Pollution: An Emerging Health Problem," U.S. General Accounting Office, CED-80-111, 1980.

17. Francis J. Offermann, J. R. Girman, and C. D. Hollowell, "Midway House-Tightening Project: A Study of Indoor Air Quality," LBL-12777, May 1981.

18. Id. p. 15.

19. Monitors for formaldehyde are currently marketed by DuPont and 3M Corporation. Radon monitors are sold by Terradex Corporation in California. See Michael Lafavore, "Clean Air Indoors," New Shelter, May/June 1982, p. 25.

20. A.V. Nero, et al., "Radon and Its Daughters in Energy Efficient Buildings," Lawrence Berkeley Laboratory, LBL-10775. Proceedings of the Natural Radiation Environment Special Symposium-II at Bombay, India in January 1981, p. 2.

21. Sources for purchasing heat exchangers are given in "Household Pollutants and How to Deal With Them," Handyman, Vol. 32, No. 1, January 1982; William A. Shurcliff, "Air-to-Air Heat Exchangers for Houses" (19 Appleton Street, Cambridge, Mass.) (also published in Solar Age, March 1982).

22. Popular Science.

23. See Nero, note 20 above.

24. Id.

25. See J.K. Martin and D.L. O'Neal, "An Energy and Cost Analysis of Residential Heat Pumps," Oak Ridge National Laboratory ORNL/CON-49, 1981.

26. Field measurements of a heat pump in Seattle in 1976-7 showed a seasonal COP of 2.2. Measurements for the succeeding year showed a reduction in COP to 2.0 as a result of night setback. See W. R. Reedy and C. E. Bullock, "Northern Climate Heat Pump Field performance Evaluation," Carrier Corporation, Research Division, EPRI/EM-2319, 1982, Tables 6.8 and 8.2.

27. See Martin and O'Neal, note 25 above.

28. S.W. Veyo, "Advanced Electric Residential Heat Pump," Oak Ridge National Laboratory CONF-810672-15. Proceedings of the

DOE Heat Pump Contractors' Integration Meeting June 2-4 1981, McLean, Virginia.

29. See Martin and O'Neal, note 25 above. Four of the thirty-three heat pumps modelled had seasonal efficiencies exceeding 2.20 (before duct losses); the best model had a seasonal COP of 2.24.

30. Personal Communication, R. Lee Culpepper, Tennessee Valley Authority. See also TVA Division of Energy Conservation and Rates, Program Summary, October 1980.

31. See J. K. Martin *et al.*, "An Energy and Cost Analysis of Heat Pumps in Northern Climates," Oak Ridge National Laboratory, DOE/TIC-11275, and note 25.

32. COP is determined using the Coleman 3230-601 manufacturer's specifications.

33. See note 29 above.

34. Davis Straub and Larry Palmiter, Ecotope, Inc., Seattle, Washington: runs of SUNCODE 1.3 for houses described in Appendix 7.

35. "The Pacific Northwest Residential Energy Survey," Elrick & Lavidge, Inc., DOE/BP-13061-11.

36. See note 32 above.

37. The capacity curve is obtained from note 32 above.

38. For the well-insulated house, energy use is 2040 kWh/year, so savings from the heat pump are 1010 kWh/year, or 115 average watts. Peak heat load during morning warmup is 15,000 Btu/hour. With resistance heat, the peak load is 4400 watts. The heat pump has a COP of 2.3 at the peak hour, and a capacity of 10,500 Btu/hour (assuming a smaller 1-1/2 ton heat pump for a Model Plan house). Input to the heat pump is 15,000 Btu/hour /2.3 x 1 Btu/3.413 watt-hour or 1340 watts. Remaining heat load is 15,000-10,500 = 4,500 Btu/hour or 1320 watts. Total load is thus 1340 + 1320 = 2,660 watts, compared to the resistance-heat peak of 4400 watts, for a savings of 1740 watts.

39. See *Solar Age*, December 1981, p. 12, for an example of a retrofit involving a Trombe wall and a sunspace.

40. See note 34 above.

41. Established in telephone interviews with Tom Campbell, Owens Corning Inc., San Jose, California (June 2, 1982); John Smith, Johns-Manville Inc., Denver, Colorado (June 2, 1982); Phil Thor, Bonneville Power Administration (June 7, 1982).

42. "The U.S. Census Components of Inventory Change" (CINCH) 1970, shows that for the West as a whole, the mean life of a single-family house was 87 years, while the mean life of a multi-family unit was 63 years. But the removal rates are dominated by demolition, rather than accidental causes: demolition comprised 67% of the single-family losses and 63% of the losses of multi-family. The 1960s were marked by anomalously high rates of housing demolition for highway construction and urban renewal, and also were characterized by the costs of demolition and reconstruction being lower than the costs of rehabilitation. Thus, we can expect that more recent demolition rates are much lower, and new lifetimes longer. The actual quality of construction does not dominate the lifetime calculation, as the lifetimes resulting from non-demolition causes are 260 years for single-family and 170 years for multi-family units.

43. A. H. Rosenfeld, et al., "Building Energy Use Compilation and Analysis (BECA): An Internation Comparison and Critical Review; Part A: New Residential Buildings," Energy and Buildings 3 (1981) pp. 315-32. See Fig. 3, particularly.

44. Barbara Shohl Wagner and Arthur H. Rosenfeld, "A Summary Report of Building Energy Compilation and Analysis, Part V: Validation of Energy Analysis Computer Programs," Proceeding of the 2nd ACEEE Conference on Energy Efficient Buildings, Santa Cruz, California, August 1982.

45. Robert Sonderegger, "Computerized Instrumented Residential Analysis (CIRA): A Simple Method for Calculating Heating and Cooling Energy in Residential Buildings," Lawrence Berkeley Laboratory, LBL-13508. 1982.

46. Gautam Dutt, et al., "The Modular Retrofit Experiment: Exploring the House Doctor Concept," Princeton University, Center for Energy and Environmental Studies, PU/CEES Report No. 130, 1982. On p. 8, the report stated that, having received only two days of training, "the house doctor teams' skills improved as the team progressed through the houses; . . . most of [the] work was carried out in the early part of this learning curve. Our experience suggest that a more extensive house doctor training program would be desirable."

47. See note 11 above.

48. See NAHB Research Foundation, note 2 above, for cost data.

49. See "M. Levine, D. Goldstein, J. Mass, "Lawrence Berkeley Laboratory Residential Building Energy Performance Standards, Series V Results," February 7, 1980; see also methods of Appendices 6 and 7.

50. *Id.*

51. "Committee Report on the Residential Building Standards," California Energy Commission, June 3, 1981.

52. L. Palmiter, "Optimum Conservation for Northwest Homes," and "Optimum Conservation in Direct Gain Homes: A New Freedom for Designers," Ecotope Group, Seattle, Washington. Heat loads are reduced from 2.07 kWh/ft^2 in a house with 50 square feet of south glass to 1.03 kWh/ft^2 for a house with 200 ft^2 of glass and thermal mass. See also J.D. Balcomb, "Energy Savings Obtainable Through Passive Solar Techniques," International Congress on Building Energy Management, Povoa de Varzim, Portugal, May 12-16, 1980.

53. In California, it was found that the new Subdivision Map Act requiring solar orientation would allow 70% or more of new houses to have good passive orientation. See note 51 above.

54. See Martin and O'Neal, note 25 above, pp. 40 and 56. Seasonal efficiencies are adjusted for 10% duct heat losses.

55. *Id.*

56. Metin Lokmanhekim, *et al.*, "DOE-2: A New State-of-the-Art Computer Program for the Energy Utilization Analysis of Buildings," presented at the Second International CIB Symposium on Energy Conservation in Built Environment, Copenhagen, Denmark, May 28-June 1, 1979.

57. California Energy Commission Energy Building Regulations, California Administrative Code, Title 20, Chapter 2, Subchapter 4, Sections 1401-10 and Title 24, Part 2, Section 5300 *et seq*.

58. California Energy Commission, New Residential Buildings Energy Conservation Manual, 1982.

59. Philip W. B. Niles and Kenneth Haggard, *Passive Solar Handbook*, published by the California Energy Commission, 1980.

60. This energy budget should be calculated precisely based on the prescription "A" given in the text, using DOE-2 and the

methods of Appendix 10. The figures of 2 kWh per square foot per year for resistance heat or 1 kWh/year for the heat pump are preliminary estimates.

61. See California Administrative Code Title 24 Sec. 2-5304(d)(3) Table 2-53S.

62. See California Energy Commission, note 51 above, and also "Financing the Energy-Efficient Home: Analysis of the Impact of the New Residential Building Standards on Housing Costs" (CEC Staff Report, August 1981).

63. See "Oregon Efforts to Conserve Energy: An Evaluation of Building Code Compliance," conducted by Performance Management Associates for the Oregon Department of Energy, 1980. While the study concludes that "Nearly all of those interviewed felt that [the code] had been effective in changing energy conservation practices" (p. i), it found that "problems in enforcing the Code were seen most often to be caused by a lack of staff or inadequate training of contractors and inspectors" (p. ii). The median inspector interviewed received only three hours of training, and inspectors consistently wanted more (pp. 24-25).

64. R. Clear and D. Goldstein, "A Model for Water Heater Energy Consumption and Hot Water Use: Analysis of Survey and Test Data on Residential Hot Water Heating," Lawrence Berkeley Laboratory, LBL-10797, draft.

65. See Appendix 7 for derivation of optimum insulation levels. Since these optima are not actually recommended, the second-order corrections to the calculation (e.g., for cylindrical geometry) are not employed.

66. The resistance is the reciprocal of the average U-value measured by Clear, note 64 above in Appendix 2, for all "current stock" water heaters listed. This value, R-2.65, is derived by subtracting the air film resistance of R-0.68 (from Table 4 of Appendix 2) from the average overall resistance of 3.31.

67. This cost is derived from the cost per R-value per square foot of retail fiberglass insulation material (to be used in increasing jacket thickness), which is $0.02 per square foot (Sears, Roebuck, and Company catalog, 1981).

68. See note 64 above.

69. See note 11 above.

70. See Appendix 9 for calculation.

71. This showerhead is manufactured by Minuse Systems of California. Cost is $260 plus installation.

72. See Clear and Goldstein, note 64 above, Fig. A.6.1.

73. For these consumers, the factor-of-two extra water consumption compensates the factor of two reduction in kWh per gallon.

74. See D. Moore, "Heat Pumps: Hot Water at the Right Price:" in Solar Age, November 1981. This article cites several evaluations of heat pump cost and performance.

75. W. P. Levins, "A Companion of Laboratory and Field Test Measurements of Heat Pump Water Heaters," Oak Ridge National laboratory, presented at the Second ACEEE Conference on Energy Efficient Buildings, Santa Cruz, California, August 1982.

76. See Moore, note 74 above.

77. See Levins, note 75 above.

78. See Clear, note 64 above.

79. See brochures for the "Sol-R-Cor" solar/heat pump system by Temcor, Inc., which advertise a cost of $2800.

80. D. Goldstein and R. Cavanagh, "Comments of NRDC on the Department of Energy's Proposed Energy Efficiency Standards for Consumer Products" (Docket No. CAS-RM-78-110), 1980.

81. SERI Solar/Conservation Study, A New Prosperity: Building a Sustainable Energy Future, Andover, Mass.: Brick House Publishing, 1981.

82. D. Goldstein and A.H. Rosenfeld, "Energy Conservation in Home Appliances through Comparison Shopping," Lawrence Berkeley Laboratory, LBL-5910, 1978. The report discusses savings that can be achieved by comparison shopping in refrigerators and air conditioners. Subsequent surveys by NRDC staff have found 30% savings for comparison shopping among existing clothes washers and dishwashers.

83. See D. Goldstein and A. Miller, Supplemental Comments of the Natural Resources Defense Council on Proposed Consumer Product Efficiency Standards, Docket No. CAS-RM-78-110, 16 June 1982.

84. An electric range uses 800 kWh per year, at an avoided cost of $80 per year. In comparison, a spark-ignition gas range uses about 6 MBtu per year, at a cost of less than $35 per year. The savings -- at least $45 per year -- easily justify the small first cost increase for using gas. See note 82 above.

85. See note 82.

86. See D. Goldstein, "Testimony Before California Energy Resources Conservation and Development Commission on Proposed Regulations for Minimum Levels of Operating Efficiency for Refrigerator-Freezers and Air Conditioners," Docket 75-CON-3, June 22, 1976. These results, adjusted for inflation, show cost increases of 22-37¢ per watt, while the Sears Catalog (Sears, Roebuck & Company 1981 Spring-Summer Catalog) shows that air conditioner costs increase between 15¢ and 65¢ per watt saved, with most increases in the neighborhood of 35-37¢ per watt. Sears' prices tend to overstate the costs of efficiency, because the higher prices pay for additional luxury features as well as for high energy efficiency. See above note 83, which finds costs of 30¢ per watt and lower.

87. At 450 hours per year, a watt of peak power savings yields an annual energy savings of 0.45 kWh per year. For a conservatively short air conditioner life of 10 years, the percent value of these savings is 40¢ - the highest cost estimates for air conditioner efficiency.

88. See D. Goldstein, "Efficient Refrigerators: Market Availability and Potential Savings," Proceedings of the Second ACEEE Conference on Energy Efficiency in Buildings, Santa Cruz, California, August 1982.

89. Id.

90. The $550 is the present value over the twenty-year life of the refrigerator of the difference in energy use between the best American and Japanese refrigerators. The present value of savings from average existing American models to the cost-minimum is more than twice as large: well over $1000.

91. R.C. Erickson, "Household Range Efficiency Improvements" in "The Major Home Appliance Technology for Energy Conservation Conference," U.S. Department of Energy CONF-78-0283, Purdue University, February 1978.

92. D. P. DeWitt and M. V. Peart, "Bi-Radiant Oven: A Low-Energy Oven System," Oak Ridge National Laboratory, ORNL/Sub-80/0082/1.

93. From note 91, the surface elements of range use 399 kWh/year and the oven uses 346 kWh, for a total of 745 kWh/year. Identified are 44.4 kWh of cost-effective energy savings from the surface burners, reducing the energy use to 354.6 kWh/year. It also specified oven measures (insulation, thermal mass reduction, etc.) that would reduce oven usage by 85.8 kWh/year to 260.2 kWh/year. Note 92 finds an average 64% reduction in oven usage due to the bi-radiant feature, which would cut oven energy to 260.2 x (1-.64) = 93.7 kWh/year. Total energy use is thus 93.7 + 354.6 = 448.3 kWh/year, or 40% reduction from the base case of 745 kWh/year.

94. Consider a fluorescent light bulb with output equivalent to a 40-W incandescent, and a lifetime of 7000 hours. Its life-cycle cost is equal to 7000 hours x $.10/kWh x .040 kW x 1/4 (efficiency factor) = $7.00 plus bulb cost. Comparable costs for the incandescent over 7000 hours are 7000 hours x $.10 kWh x .040 kW = $28.00. Bulb cost is (7000 hours/1500 hours mean life - 1) x $.83 per bulb = (4.67-1) x $.83 = $3.05. Total life-cycle cost is $31 for incandescents; thus, if fluorescent bulbs cost less than $24, they are cost-effective. Estimated costs are actually in the range of $10-$20.

For 60-watt bulbs, the costs are $47 for incandescents and $10.50 for fluorescent operation.

95. These are the levels of efficiency from Martin and O'Neal, see note 25 above, for Improved Heat Pump 7. This model is cost-effective in Northwest conditions.

96. California Energy Commission Appliance Efficiency Standards, California Administrative Code Title 20 Section 1601, et seq.

97. Id.

98. Id.

99. The efficiency of new units can be approximated by the efficiency of typical models meeting the California standard, which is about 1300 kWh/year for top-freezer automatic defrost units.

100. See testimony of Owen Davis, Pacific Gas and Electric Company before the U.S. Department of Energy on Proposed Appliance Efficiency Standards, 18 May 1982.

3. Commercial Sector

a. Inventory of Measures

Commercial building energy consumption arises from four major end uses: lighting, cooling, heating, and water heating. This sector is characterized by great variety in building types and uses, ranging from 24-hour-a-day computer centers to one-use-a-week public assembly buildings, and from 1000-square-foot corner stores to million-square-foot office buildings and shopping malls. Energy consumption patterns vary widely among buildings, and particular conservation measures may be far more applicable or cost-effective in one building than another. However, virtually all buildings can realize substantial energy savings, and generic descriptions of conservation measures are instructive in analyzing the sector as a whole.

Despite differences in building design and operation, many energy-consuming features are consistent across buildings. Lighting systems generally are based on one of three or four types of fluorescent light bulbs.1/ Lighting intensities do not vary substantially from building to building or from type to type. A recent BPA survey of commercial buildings in the Northwest shows no apparent statistical difference in lighting levels across fifteen building types.2/ While heating and cooling systems are different from building to building, virtually none was or is being designed to minimize life-cycle costs at current electricity prices. As a result, large percentage savings are nearly universally feasible, even though the exact methods for achieving the reductions can best be determined individually.

Conservation strategies for existing commercial buildings should be implemented by studying generic conservation techniques as described below, and fine-tuning exact recommendations and incentives on a building-by-building basis. Energy audits will be a cornerstone of this strategy. Consulting engineers estimate typical savings from an audit in the range of 20-30% using only free or inexpensive measures, and at more than 50% for more extensive and costly changes. As a conservatism, we have reduced these averages to 15% and 40%, respectively, in the Model Plan forecast.

These potentials can be realized through measures described in the sections that follow. The discussion is organized by end use. Engineering texts on the subject provide additional technical detail;[3/] however, such analyses generally do not undertake to minimize life-cycle costs (opting instead for measures with extremely rapid paybacks), and their recommendations thus tend to be less aggressive than those of the Model Plan.

For new buildings, the effects of conservation measures can be described in terms of energy budgets. In general, as shown below, an energy consumption target of 6 kWh per square foot or less is cost-effective for a new all-electric building in the region; indeed, several existing buildings, most of them in climates more extreme than the Northwest's, already achieve these or higher levels of efficiency. Six kWh/ft^2 represents a reduction of more than 50% from levels typical of current new construction. Commercial sector conservation measures are discussed below by end use.

i. Lighting

Four strategies are available to save lighting energy: reduce lighting intensities, provide high light levels only on work surfaces, use more efficient bulbs and fixtures, and employ more daylighting. All four should be significant elements of a Northwest conservation plan.

At the outset, it is instructive -- if somewhat shocking -- to note that interiors of most commercial buildings are lit at least ten times more brightly than homes.[4/] This profligacy is unaccompanied by any justification grounded in health or safety considerations.[5/] Shifting these high lighting levels to a range more consistent with what people choose to provide for themselves is likely to prove a welcome change for building occupants as well as an energy-saving measure.

Discussion of lighting levels typically involves two units of measure: a power rating (watts/ft^2) and an intensity of illumination rating (footcandles). Illustrative ranges for both, in different building types, are as follows:

	Residence	Existing Commercial Building	New Commercial Building
watts/ft^2	less than 1/2*	2-5	2-2 1/2
footcandles	1-10	50-150	70

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*Wattage that would be needed to maintain, with fluorescents, illumination levels currently supplied by incandescents.

The use of high lighting levels in commercial buildings has been justified in the past as an inducement to higher productivity, but the evidence supporting this contention is extremely dubious. Relationships between lighting and productivity in real office situations have never been established convincingly. In general, the few experiments that have been performed were poorly controlled, and the results are inconclusive at best. One widely-cited study,[6/] which apparently links lighting levels and productivity, found that employee performance changed the first day after light levels were altered, but also showed that the change diminished rapidly with time. It apparently would have disappeared (or become negative) after the first week, but the experiment did allow the results to stabilize.

In another experiment performed recently by Pennsylvania Power & Light, a reduction in lighting level led to an increase in productivity,[7] but again there are plausible explanations of the results that have nothing to do with a link between productivity and lighting.

Without realistic experiments, one is reduced to using laboratory results on visibility to relate lighting and productivity. But these experiments are of questionable applicability to the real world, where the putative effect of lighting is swamped by other much more important influences, such as motivation, salary, working conditions, temperature, space, the quality of office equipment, etc.*

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*Most of the experiments on productivity and light level are performed under forced test conditions. Subjects are graded on their performance on the test, and results are compared as a function of light level. The high stress levels of a test tend to overstate the effects of physical (as opposed to psychological) factors on performance. Nevertheless, results of a typical test examined by Ross showed no beneficial effects on performance of light levels over 10 footcandles, and few positive effects above 1 footcandle.[8] Such tests, while given under conditions that mask motivational effects, at least are designed to measure the reactions of people to realistic tasks.

Yet many experiments have been performed under more artificial laboratory conditions. Timed tests of relatively high visual difficulty are administered to subjects who are unable to move either their heads or the task in response to difficult visual conditions. Extrapolating these results to office environments is extremely problematic.

Finally, none of the visual performance literature addresses nonvisual factors affecting productivity. Motivation or other factors with much greater and more obvious productivity implications than lighting are not studied. The aversion expressed by a surprisingly large number of office workers to their bright fluorescent lights is not taken into consideration in predicting productivity. Thus, the use of results from lighting level experiments to fix the benefits of high illumination levels is inadvisable.

But even if one asserts that the laboratory test results are somehow applicable in the real world, one must still balance the monetary value of the predicted increase in efficiency with the cost of increasing the lighting level.

In doing so, it should be noted that increasing lighting levels beyond the minimum needed for comfort is expensive. More light means more cost for lighting fixtures, installation and wiring, maintenance, and lamp replacement, as well as higher electricity bills. To calculate a cost-effective lighting level, these costs must be balanced against the benefits they produce.

Robert Clear of Lawrence Berkeley Laboratory has performed such an analysis.9/ He concludes that, for most tasks, the life-cycle cost minimum level of illumination is about 15 footcandles, if the marginal cost of electricity is 10¢ per kWh. For particularly demanding tasks, optimum light levels are 60 footcandles or more. But these tasks are costly to perform in any event, so it is generally less expensive to make the tasks easier than to increase the lighting. That is, if it is worth spending several hundred dollars on an employee to increase his lighting, it makes sense to eliminate the need for that investment by improving the quality of the task, as long as the same or lesser costs are involved. For example, it may be more effective and cheaper to buy a better copy machine, or use softer pencils or pens, or provide magnification for small tasks, than to increase lighting levels to compensate partially for failures to take such steps.

Based on Clear's life-cycle cost analysis, we conclude that for tasks with a mix of visual difficulty, optimum lighting levels are well below 30 footcandles at most work stations. Even these levels may be too high, because they are based in part on the questionable results of the productivity experiments.[10/] An illumination range of 10-30 footcandles is consistent with power requirements of 1/2-1 watt per square foot, using conventional fluorescent lamps and luminaires. These targets are one-third to one-sixth of requirements associated with conventional practice, so it is clear that substantial conservation can be effected merely by reducing light levels.

It should be noted that the lighting industry itself does not contest the general illumination levels that we propose. The Illumination Engineering Society currently recommends lighting levels of 15 footcandles for typical work spaces in which tasks are only occasionally performed.[11/] Tasks of average to moderate difficulty, such as reading pencil handwriting, are thought by the industry to require 30 footcandles. Corridors and other non-task spaces can be lit at 3-10 footcandles without compromising safety.

Once appropriate lighting levels are established, considerable conservation can be achieved through the use of more efficient fixtures, ballasts, and tubes. Compared with current practice, combinations of parabolic-reflector fixtures, energy-saving tubes, and solid-state ballasts can produce a given level of lighting for over 50% less energy.[12/] The ballasts alone can save 20-40% of lighting energy.[13/] General lighting at an average of 20 footcandles can be achieved using only 0.45 watts per square foot;[14/] this average figure allows for concentrated illumination in excess of 30 footcandles in task areas.

This level of general lighting should provide increased user satisfaction, since user-installed lighting tends to be in this brightness range or lower. However, for the retrofit case, care must be taken to avoid unfavorable user reactions to de-lamped buildings. If the users are made to feel that an inferior lighting system is being imposed on them from above, then productivity may indeed suffer. It is important to involve employees in the design of lighting retrofits, to ensure that the new system increases worker satisfaction while it saves energy.

This goal often is best achieved by supplementing reductions in general lighting levels with the introduction of task lighting. If light levels at desks or work stations can be increased with a lamp under each worker's control, the ability to create high levels of light for visually demanding tasks will still exist, but workers will no longer be forced to endure unnecessarily brillant background illumination. Task lighting has been used in a number of recent buildings to achieve average lighting power levels below one watt per square foot.[15/]

Task lighting can be made available in several different ways. The most straightforward -- and generally the least expensive -- is use of desk lamps. Alternatively, overhead lighting can be focused on the areas in which tasks are performed. This is relatively inefficient, since the areas illuminated to the higher levels are generally larger than the task areas. Nevertheless, the new California Energy Commission building uses ceiling-mounted task lights to meet a lighting power budget of only 0.72 watts per square foot;[16/] it achieves these results while maintaining higher light levels than those we recommend, and taking no advantage of the additional savings available from solid-state ballasts.

Task lighting can also take the form of "furniture-mounted" units, which are generally built into partitions used to separate work spaces. Several existing designs in San Francisco and Oakland use furniture-mounted lighting as the basis of systems that use only 0.76-1.25 watts per square foot; the upper end of this range represents the highest illumination provided by a two- or three-way dimmer switch.[17/] Again, higher lighting levels than those we recommend are used, and solid state ballasts are not employed.

Solar energy can also be used to displace much artificial lighting. Most of the demand for commercial lighting occurs during the daytime, so that in principle sunlight can be used as a broad substitute for artificial light, especially for general area lighting. This technique is being applied successfully by a number of architects and designers in both new and existing buildings,[18,19] and is susceptible to widespread application, particularly in Northwest climates where the problem of glare from direct beam sunlight is diminished. Daylighting is more than just a way of replacing energy consumption by the electric lighting system; it also supplies higher-quality light. Building occupants generally prefer daylight to artificial light, and daylit buildings frequently are more successful aesthetically than conventional buildings.

In some existing buildings, including offices that physically resemble (or were remodelled from) residential spaces, daylighting already provides the bulk of lighting needs. Two examples of daylit offices in San Francisco -- both retrofits -- have cut their artificial lighting requirements to the equivalent of 0.3 to 0.5 watts per square foot.

These measures provide the opportunity for saving more than 75% of lighting energy in a new building or a completely remodelled existing building, where the entire lighting system can be designed for optimum attractiveness at the most cost-effective level of intensity. Resulting requirements should be on the order of 0.45 w/ft^2 for general lighting and 0.15 w/ft^2 for task lighting. But simply reducing light levels in existing fixtures should cut lighting energy consumption by 50% in a typical existing building.

Improved ballasts are also feasible as a retrofit of general applicability. Solid-state ballasts can be used everywhere that fluorescent lamps are now installed, and they permit dimming of lamps for better control of illumination and still greater energy savings.[20/] In addition, the efficiency of individual bulbs can be improved. The advantages of fluorescent lights over incandescents are well known, but even more efficient high-pressure sodium lamps are beginning to appear in new commercial applications.

ii. Cooling

In most of the Northwest's urban centers, energy consumption for cooling should prove negligible in a well-designed and well-operated commercial building. Potential cooling demand in the major cities is attributable primarily to internal loads (heat gains from the body heat of occupants and from lighting and equipment) and to solar heat gain through windows. Measures for reducing or efficiently meeting these cooling needs are addressed below.

Internal loads will be reduced automatically by lighting conservation. In overlit buildings, this represents the bulk of internal load. For example, in a typical office with 3 watt per square foot of lighting and one employee per 250 square feet, lighting accounts for more than 70% of the internal load. Reducing lighting by half will therefore have a marked effect on cooling loads. Such a large reduction will probably alter the relative cooling needs of interior and perimeter areas, requiring a readjustment of the HVAC (heating, ventilating, and air conditioning) systems for optimum performance.

Solar heat gains can be reduced by shading windows. On new buildings, external overhangs can be used, particularly for south-facing windows. Window areas can be designed so that cooling-load-producing west windows are minimized while heating-load-conserving south windows are added.

After internal and solar loads have been reduced, most residual cooling energy needs can be met with a well-scheduled economizer. Economizers make possible the use of outside air for cooling whenever doing so saves energy compared to running chillers or recirculating interior air. For a climate like that of the Northwest, where even summer ambient temperatures are generally below the desired room temperature, economizers can be extremely effective.

For a new building, the adroit use of thermal mass, along with the techniques described above, should totally eliminate the need for air conditioning. In a massive building, the economizer and ventilation controls can be used to provide night cooling of the building with outside air. The thermal mass will store this "coolness," so that when the outside temperature rises and the economizer resets to recirculate the building air, the cold thermal mass can absorb the cooling loads. These techniques have been employed successfully in a new state office building in Sacramento, California,[21/] where daytime high temperatures average 93 degrees in July, and in a desert museum for a state park in San Diego County, California.[22/] For existing buildings, where thermal mass may be insufficient, some cooling may still be needed in the aftermath of retrofits, but its magnitude will be greatly reduced.

iii. Heating

Space heating needs for commercial buildings can be reduced by applying techniques analogous to those used in the residential sector: insulation, leak-plugging, and the use of heat pumps for increased heating efficiency. The operation of commercial buildings is more complex than that of residences, so precise data on how much insulation is needed to minimize life-cycle costs are not as readily available. However, studies are currently being performed on optimized heating systems, and several general observations can be made.

First, when lighting loads are reduced, the need for space heating will tend to go up.* Of course, the savings in lighting are much larger than the extra cost for heating, since a lighting system is a very inefficient and poorly controlled way of adding heat to a room. If heating needs are significant, though, it will be cost-effective to add insulation or to use heat pumps (neither of which pays in an over-lit building). Since many published insulation studies focus on such over-lit, over-cooled structures, new computer modelling work may be needed to determine cost-effectiveness.

Ventilation in commercial buildings usually is controlled mechanically. Buildings often use more fresh air than is necessary under code standards; simply reducing ventilation levels to code specifications will save substantial amounts of energy. This readjustment is easily performed as a retrofit.

Energy consumption for heating a cost-minimizing commercial building should approximate, in kWh/ft^2, totals derived for the residential sector. We show in Appendix 7 that the cost-minimizing heating energy budget for a new residence is at most one kWh/ft^2 per year.* Optimal heating consumption for a new commercial building should be no larger than this, since commercial buildings have (1) more sources of free heat than residences; (2) less surface area for heat loss per square foot of interior space; and (3) fewer hours of occupancy. Stated differently, if a proposed design for a commercial building did contemplate substantially more than 1 kWh/ft^2 for space heating, it would be cost-effective to keep adding heating conservation measures -- increased air tightness, increased insulation, heat recovery from exhaust air, etc. -- until energy consumption reached 1 kWh/ft^2 or less.

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*However, this is not always the case. For buildings employing multi-zone HVAC systems, space heat may be employed to balance cooling needs among zones. Lower lighting levels make this balancing easier to do, and reduce associated space heating needs.

iv. Hot Water

Hot water use in commercial buildings occurs primarily in special-purpose buildings, such as restaurants and hospitals. Energy conservation measures center on reducing hot water use and increasing the efficiency of devices that supply hot water. Low-flow showerheads can be an extremely cost-effective measure in buildings with heavy shower demands, such as gymnasia. In a school gym, for example, the super-low-flow showerheads described above in Section B.2.e.(i) are clearly cost-effective. Buildings with food service facilities, on the other hand, use most of their hot water for dishwashing; here, top priority should go to installing more efficient dishwashing appliances.

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*The recommended performance standard for residential building shells is 2 kWh per square foot, but this assumes resistance heat; adding a heat pump cuts consumption in half.

b. Regulatory and Incentive Programs

i. Existing Buildings

A commercial retrofit program should be adapted to the special features of the commercial electricity-using sector; it will be quite different in form from the residential program. Because commercial buildings are so diverse, a set of overall prescriptive standards (*e.g.*, R-11 wall insulation retrofits) will not generally be practical. There is a tremendous range in initial needs for electricity: some buildings use electricity for heat, while others use fossil fuel; some buildings use substantial amounts of electricity for processes (*e.g.*, cooking, computers, refrigerated display cases), while others only use electricity for building operations; some buildings operate 24 hours a day, while others are run only during business hours.

The mainstay of the commercial retrofit program will be energy audits, which emphasize both "fine tuning" or overhaul of existing equipment and capital investment measures that are associated with changing heating, cooling, or lighting systems. Trained auditors will examine individual buildings and suggest appropriate conservation measures, such as lighting efficiency improvements, delamping, better adjustment of HVAC controls, etc. Return visits, to ensure that operation and maintenance procedures are continued and to help resolve any persistent problems, will be required on approximately a yearly basis following the initial audit.

Commercial auditors should be well-trained professionals with backgrounds comparable to those of HVAC engineers, to ensure that they are equipped to identify all possible cost-effective improvements in every aspect of the building's operation. Historically, commercial auditors -- who were generally hired at relatively low-level positions with little long-term job security -- have not had sufficient background in engineering to be able to identify anything approaching the full range of cost-effective savings. As a result, auditors proposed measures calculated to cut overall building electricity use by 10-15%, compared to the savings of 30-50% or more which can be achieved (even without investments requiring long payback periods) after consultations with professional HVAC engineers. Although they command higher salaries, thoroughly trained commercial auditors with strong engineering or conservation backgrounds will more than offset the increased cost of the audit by substantially increasing the savings that are identified. As in the residential sector, audit and other program administration costs should be underwritten by BPA.

The goal of the Northwest's commercial building program is to purchase all conservation that is cheaper than new electricity supplies. To make this possible, BPA should provide financial incentives to commercial customers whose post-retrofit energy savings exceed a threshold described below.

The "threshold" requirement ensures that the rebate purchases only conservation that does not produce immediate economic benefits to the building owner. We recommend that rebates be given for savings in excess of those determined by an audit to have a payback of two years or less. That is, suppose a building used 12 kWh per square foot, and that an audit specified rapid-payback measures to reduce consumption to 10 kWh/ft^2. All savings beyond 10 kWh/ft^2 would qualify for BPA payments.

These payments should be structured to reflect the fact that energy savings are a function of both physical modifications in buildings, and of operating and maintenance procedures. The first category reflects capital investment that potentially creates a long-term energy resource for the region, which "produces" electricity year after year. However, savings realized through operational changes can be lost as a consequence of subsequent action (or inaction) by building personnel. Moreover, long-term energy efficiency investments can be partially or wholly negated by increased operational laxness.

Accordingly, efficient operations should be encouraged by phased incentive payments and yearly check-ups from auditors. Of course, some "up front" payments will be needed to help defray capital costs for structural and equipment improvements. The incentive package must reflect a balance between the need to spur immediate investment and the need to ensure efficient operations over the long term.

We propose the following guidelines as one option for program design. BPA (or one of its utility customers) would estimate lifetime savings in excess of the rapid-payback threshold from measures a building operator proposed to install, assign those savings a present value based on the costs of new electricity supplies to the region and the anticipated life of the measure,* and award one-half that amount to the building operator. Thereafter, metered savings in excess of those compensated by the initial payment would qualify for supplemental rebates, based on their value to BPA in the year they appeared.

These conservation payments should go to the party responsible for making and maintaining the improvement. This may be the tenant, the leasing agency, the building management company, or the owner. Thus, even a tenant who does not pay his own utility bills has a reason to conserve. The following summary uses illustrative numbers to clarify the way the program would work:

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*Since (1) total program costs cannot exceed the avoided cost of new supplies and (2) program costs will include auditor training and supervision, the actual rebate level will be somewhat less than total avoided costs (by an amount sufficient to cover auditing and program overhead costs).

IF	pre-retrofit consumption = 12 kWh/ft^2;
AND	fast-payback savings identified by auditor = 2 kWh/ft^2;
AND	additional projected savings from identified measures that can be installed by owner = 4 kWh/ft^2;
THEN	owner qualifies for up-front payment based on present value of one-half additional projected savings (2 kWh/ft^2);
AND	owner receives additional year-by-year payment for metered savings in excess of one-half additional projected savings (here, for savings that reduce metered consumption below 8 kWh/ft^2).

In addition to ensuring that projected savings are actually realized, this program design also encourages sound auditor training. If the auditor fails to identify a fast-payback measure which the building manager later finds, BPA's costs increase. It is thus to BPA's advantage to make sure that auditors are well-trained engineering professionals who can catch all the quick and cheap measures.

Due to the large number of small commercial accounts in the commercial sector, and high turnover rates, frequent energy audits will be necessary to ensure that conservation savings are being maintained in small commercial buildings. Re-audits are recommended whenever a building or a large space within a building changes occupants. At this stage, less-expert auditors can be used, since recommendations will focus largely on maintenance (as opposed to new capital investment). It is unlikely that a change of renters will significantly alter the HVAC system; however, a follow-up audit will provide an opportunity to familiarize the new occupants with previously endorsed energy conservation techniques.* Also, a change of occupancy is often accompanied by the remodelling of lighting systems, providing a perfect opportunity to make sure that highly efficient systems are installed.

This program provides reasonable rewards and incentives for all parties. A demand by building operators for audits is ensured, since they are a prerequisite for BPA payments. The incentive structure avoids equity-based criticisms by omitting BPA payments for measures that offer immediate economic benefits to the building operator. By contrast, operators of relatively efficient buildings may find that the auditors can find no fast-payback measures, so that all subsequent savings are eligible for payments. Finally, the economic incentive to conserve reflects the cost of new electricity supplies to the region.

The Model Plan forecast assumes that this incentive program will produce rapid penetration of fast-payback measures

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*Of course, new tenants should replace their predecessors as recipients of annual BPA payments for metered savings.

(yielding 15% savings per building, on average) and less substantial but still significant numbers of "major retrofits" (yielding 40% savings per building, on average). See section III.B.4 below.

Should participation levels fail to meet these expectations, a low-cost regulatory option is available for rapidly exploiting part of the commercial sector's conservation resource. Mandatory lighting standards can be adopted for existing buildings to promote de-lamping, upgrading of efficiency, and lighting system redesign. The standards should be fixed in term of watts per square foot of lighting demand.

The standard would have to make some accommodation to constraints arising from fixed characteristics of existing lighting systems. Certainly, however, it is reasonable to anticipate a one-third illumination level reduction from typical current practice (barely visible, since the eye responds logarithmically*), coupled with 40% energy savings based on improvements in the efficiency of fluorescent tubes, lighting fixtures, and ballasts. This yields a recommended lighting energy budget of 1.2 watts per square foot, applicable to all types of buildings. This energy budget would apply to the building as a whole, so brighter rooms could be used as long as the average remained under 1.2 W/ft^2.

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*That is, successive doublings of brightness levels are perceived by the human eye as simple linear increases, and vice versa.

ii. New Buildings

Building codes based on energy budgets offer the most flexible way of ensuring cost-effective energy conservation in new buildings of all types. This flexibility is particularly important in the commercial sector, because of the wide variety of options and tradeoffs available. As in the residential sector, simple "cookbook" methods for code compliance should also be available to designers who do not wish to make use of the more complex energy budget approach.

For the reasons that follow, we conclude that an energy budget of 6 kWh/ft^2 per year or less is appropriate, on average, for new commercial buildings. This budget applies to heavily-used buildings, such as offices or stores; however, it would underestimate the electricity needs of 24-hour-a-day facilities, and would overstate the needs of intermittently occupied buildings.

First, consider lighting energy needs. As the previous section demonstrates, optimum levels of illumination can easily be achieved within a power budget of 0.45 watts per square foot, through the use of high-efficiency fixtures, tubes, and ballasts. If we assume that each employee also uses a 40 W fluorescent desk lamp, then a ratio of one employee per 250 ft^2[23/] implies an additional 0.16 W/ft^2 of task lighting. Total lighting power use is thus 0.6 W/ft^2. We adopt this figure as the benchmark lighting budget.

This selection is conservatively high, for several reasons. It does not include any savings due to daylighting, which can reduce lighting energy needs by over 20%.[24/] Also, the lighting budget is based on conventional fluorescent lamps, rather than higher-efficiency systems such as high-pressure sodium. It includes a generous allowance for task lights, which will not really be used continuously when the general lighting is on. Finally, it conforms to Illumination Engineering Society recommendations for lighting levels, even though these levels are higher than necessary to provide a pleasant working environment and minimize life-cycle costs.

This lighting power budget translates into a lighting energy budget of 2 kWh/ft^2 per year, using 3,300 equivalent full-load hours per year of operation (the average used in California's building performance standards).[25/] Cooling energy use for the Northwest should be trivial. We have already referred to the office building recently constructed by the State of California in Sacramento, where outside temperatures frequently exceed 100°F; that structure uses less than 1 kWh/ft^2 per year for cooling, including both fan energy and mechanical cooling energy.[26/] Heating energy consumption, as discussed previously, should also be lower than 1 kWh/ft^2. Hot water energy for a typical building (excluding restaurants, swimming facilities, and gymnasia) should be on the order of 1/2 kWh/ft^2 per year, assuming that a person uses one-third as much energy for personal purposes (e.g., washing hands) in a commercial building as is used at home (where showers are included), and assuming that heat pump or solar water heaters are used.

Thus, lighting, heating, cooling and hot water should consume no more than 4.5 kWh/ft^2/yr. Adding another 1.5 kWh/ft^2 to cover elevators, extra allowances for ventilation equipment, pumps, etc., we derive a total energy budget for the building shell of 6 kWh/ft^2 per year, on average.

This budget is approached or met by a number of buildings that exist or are planned, including BPA's most recent commercial structure, rated at 8.4 kWh/ft^2/yr.* Canada's 1980 energy-efficient building design competition produced buildings using 6 kWh/ft^2 or less even in harsh Canadian climates.[27/] The new California State office building meets that standard,[28/] and the San Diego museum does even better, using 4.1 kWh/ft^2.[29/] These achievements are even more striking when one notes that the designs in question uniformly incorporate lighting levels in excess of the minimum life-cycle cost-based targets outlined above, and were not able to take advantage of solid state ballasts, which only recently became available. Thus, 6 kWh/ft^2 should not be difficult to achieve in the Northwest, and this budget represents a conservatively high estimate of minimum-life-cycle cost energy consumption.

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*The BPA building would probably meet the Model Plan standard if it complied with our lighting recommendations.

Commercial building codes should be designed so that compliance by proposed designs is relatively easy to demonstrate. This goal can be reached through methods analogous to those we recommend for the residential sector. For example, a prescriptive standard should be available for designers (particularly those hired by small businesses) who wish to minimize expenses by using a "cookbook" approach. These standards can adopt the format of an existing model code called ASHRAE 90-75. The prescriptive package should include a lighting power budget of 0.6 W per square foot, or the equivalent average annual energy use (accounting for daylighting, switching-controls, etc.). It will also contain insulation standards, glazing standards, ventilation requirements, and guidelines for system selection and equipment efficiency. Specific recommendations must await comprehensive life-cycle cost analyses. We expect that insulation levels will be about R-19 to R-30, and glazing levels double or triple, with shading or solar screening on east and west and probably south elevations.

Architects who wish to deviate from the prescriptions must use the budget approach. This requirement has been enforced in California since 1978 and is administratively feasible. The Regional Council can assist architects and code officials by providing simplified methods for using performance standards. One promising option is a two-step system for applying a complex computer model called "DOE-2."

At present, using DOE-2 to determine code compliance requires a high level of sophistication. The user must describe all aspects of the building, then run the program and determine the building's projected energy consumption by analyzing many pages of printout. Finally, this energy consumption is divided by square feet and compared to the energy budget.

Most of these tasks can be turned over to a second computer program. This program automatically enters all the right assumptions, schedules, etc., into the DOE-2 input files. It asks simple questions about the building design (*e.g.*, what R-value is used in the walls) and makes assumptions for the hundreds of extra variables that are needed to use DOE-2. The program then runs the DOE-2 model, and assembles the results, printing out directly the comparison between the building's design energy consumption and the budget. This program can be run on a cheap micro-computer, which is a common piece of equipment in architects' offices; the micro-computer is then connected by telephone to a large computer that actually performs the DOE-2 run. A computer program meeting all these specifications is currently being developed for the California Energy Commission.

In addition to the two-step procedure described above, designers of large and complex buildings retain the option to use the DOE-2 program directly, allowing for still greater design flexibility.

Building codes that use both the "budget" and "prescriptive" approaches will leave designers substantial room to maneuver. Lower lighting energy needs, which would result from systems emphasizing daylighting and automatic switch-offs, could be used to displace heavy insulation. Higher lighting levels could be obtained by using extra-efficient light sources or daylighting; alternatively, additional lighting energy could be compensated by extra-efficient cooling systems, control of solar heat gain, and active solar systems. Factor-of-three or greater variations in lighting and insulation levels are within reach of designers willing to employ these or other innovative approaches.

As in the residential sector, BPA-funded training programs will be needed to enable local code officials to enforce the new standards. Training should be sufficient to allow local officials to understand and evaluate plans that use either the prescriptive approach or the two-step computer analysis. In addition, the Regional Council or State Energy Offices should provide expert personnel upon whom local officials can rely for assistance in evaluating the more complex designs.

It is not clear to what extent BPA will need to supplement the new codes with financial incentives. In contrast to the residential sector, the extra costs to the builder of efficiency improvements may not be very large. Many of the recommended measures actually reduce first costs for the building (*e.g.*, lower light levels require fewer fixtures; reduced cooling loads permit installation of down-sized cooling systems).

The potentially lower first-cost impact of conservation in new commercial buildings argues for a more limited incentive program, although rewards should still be available for beating the Model Plan's performance standard. One option is to pay for only those savings in excess of a benchmark that represents an improvement on current average practice, while still falling short of performance requirements in the Model Plan standards. The proposed (but now moribund) federal Building Energy Performance standards provide such a benchmark; the BEPS analysis includes budgets for over a dozen types of commercial buildings, and covers a range of climates that encompasses the major urban centers of the Northwest. Under this approach, all new commercial buildings would qualify for BPA payments based on kilowatt-hours saved per square foot, compared with consumption targets established for the relevant building category in the draft BEPS. All buildings in compliance with the Model Plan standard would then receive some compensation, and buildings that beat the standard would receive additional payments based on the value of the extra savings to the region.

Commercial Sector: FOOTNOTES

1. See Jon Leber, "Proposed Appliance Efficiency Standards for Fluorescent Lamp Ballasts," California Energy Commission, August 1981.

2. Westat survey computer analysis performed by Jim Sapp at BPA.

3. See, for example, Fred S. Dubin, How to Save Energy and Cut Costs in Existing Industrial and Commercial Buildings (Park Ridge, New Jersey, Noyes Data Corp., 1976)

4. R. Cavanagh, et al., Choosing an Electrical Energy Future for the Pacific Northwest, an Alternative Scenario, NRDC, 1980. Published by the U.S. Department of Energy, DOE/CS/10045-T1.

5. Health consequences of reduced light levels are discussed in the NIOSH Symposium, "The Occupational Safety and Health Effects Associated with Reduced Levels of Illumination," Cincinnati, Ohio, July 11-12, 1974. Dr. Richard Blackwell, an advocate of high illumination levels as a means of increasing productivity, summed up the conference by stating:

> It seems quite clear that reduced light levels ... do not produce any anatomical or physiological damage to the eye. (p. 142).

Harold Nelsen, Director of the General Services Administration's Accident and Fire Prevention Division, concluded:

> ...for the vast majority of the population and work tasks and programs conducted in federal space, the present energy conservation lighting levels ... generally will not result in any reduction in worker efficiency, effectiveness, or any fatigue or strain in the individual employee. Any adverse impact on the healthy population's ability to see is at lighting levels considerably below [this]. (p. 145)

An opthalmologist, Dr. David Cogan, stated that "No organic disease of the eye results from low illumination." (p. 28) John Grimaldi pointed out that applicable standards for industrial safety (American National Standard Practice for Industrial Lighting, A11.1, 1973) specifies 1/2-1 footcandle for areas of slight hazard and 2-5 fc for areas of high hazard.

Thus five footcandles more than adequately addresses all health and safety concerns. This is lower than the lowest levels recommended in the Model Plan.

6. See the GE keypunch experiment results in "Studies show lighting affects productivity," Electrical World, 15 June 1975. Two other studies cited in this article are also inapplicable to commercial building situations: one concerned a laboratory-type experiment in a warehouse and the other office study was admittedly "rather unscientific in that there may be other factors involved in the six-week production drop under lower lighting levels."

7. Russell Allen, "Pennsylvania Power and Light, A Lighting Case Study," Buildings March 1982, pp. 49-56.

8. D. Ross, "Task Lighting - Yet Another View," Lighting Design and Application, May 1978.

9. R. Clear and S. Berman, "Cost-Effectiveness of Visibility-Based Design Procedures for General Office Lighting," Lawrence Berkeley Laboratory, LBL-10514, 1980.

10. R. Clear and S. Berman, "A New Look at Models of Visual Performance," Lawrence Berkeley Laboratory, LBL-12496. Presented at the Illumination Engineering Society Annual Technical Conference, Toronto, Canada, 1981.

11. "Selection of Illuminance Values for Interim Lighting Design -- RQQ Report No. 6," Journal of IES, April 1980.

12. A conventional fixture uses two 40 W lamps at 3150 lumens each with a coefficient of utilization (CU) of .48 and light loss factor (LLF) of .75 for a net output of 2267 lumens and an input of 96 watts. In contrast, a parabolic-reflector fixture with two efficient 35-watt light-white tubes and solid-state ballasts produces 6100 gross lumens at a CU of .63 and an LLF of .85 for 3267 net lumens and an input of about 65 watts. The watts per net lumens of the efficient combination is 53% lower. See the California Energy Commission "Benefit to Cost Report, Occupancy and Physical Category No. 1" 1981/2 Nonresidential Building Standards Development Project; Report P400-82-039, April 1982, Appendix D.

13. See R.R. Verderber, "Electronic Ballast Improves Efficiency" in Electrical Consultant November/December, pp. 22-26. Energy savings are 20-25% for comparable light output. However, conventional ballasts allow the output of the lamp to decrease with variations in lamp parameters (*e.g.*, age). If lighting sustem performance is specified for a given light level, the system is overdesigned so that it meets specifications under adverse conditions. Solid state ballasts yield more constant light output, with some range for adjustment, so the design tolerances can be reduced, increasing energy savings to 40%.

14. California Energy Commission derivations paralleling those in Note 12 show that light levels of about 15 footcandles can be achieved at a power level of 0.51 to 0.6 watts per square foot using conventional efficient ballasts. The calculation employs the characteristics of a one-lamp fixture of CU = 0.52 and LLF = .75 and 3050 lumens gross output. Reducing these estimates by 15-20% for solid-state ballasts, we derive a range of 0.41 to 0.51 watts per square foot.

15. See Winning Low Energy Building Designs, Public Works, Canada (Hull, Quebec, Canada: Canadian Government Publishing Centre, 1980). See "Boignon" office building (p.470), "Hix" office building (p. 496), "Johns" office building (p. 500), and "Levin" building (p. 84) for installed lighting levels of about 1 W/ft^2 or less. Also the "Gulf Square Canada" building (p.30) (which is built and operating), and the "Belzile" building (p. 463) have annual energy consumption for lighting which is equivalent to 1 W/ft^2 operating 3600 hours per year.

16. Fred Berryman, California Energy Commision, presentation to Nonresidential Standards Professional Advisory Group on Lighting System Examples, 28 September 1982.

17. Id.

18. See S. Selkowitz, "Effective Daylighting in Buildings, Parts I and II, Lawrence Berkeley Laboratory, LBL-8626, published in Lighting Design and Application, February/March 1979, and S. Selkowitz and R. Johnson, "The Daylighting Solution," LBL-11796, published in Solar Age, August 1980, pp. 14-20. Also, many buildings in note 15 rely heavily on daylighting.

19. See Donald W. Aitken, "An Upper Story Enterprise," Solar Age January 1981, pp. 22-26.

20. See footnote 13 above.

21. See Soft Energy Notes 4, 4 for description.

22. Keniston and Mosher, Architects, "Final Energy Analysis, San Pasqual Battlefied State Historic Park," 666 State Street, San Diego, California, 92101.

23. "Downtown San Francisco Conservation and Development Planning Program," Sedway-Cooke, San Francisco, 1979.

24. J. Derringer," Life Cycle Cost Study of Commercial Buildings," AIA Research Corporation, Washington, DC, 1980.

25. California Administrative Code Title 24 Section 6, Commercial Building Energy Standards.

26. See footnote 21 above.

27. See footnote 15 above.

28. See footnote 21 above.

29. See footnote 22 above.

4. Summary of the Residential and Commercial Sector Forecasts

a. Electricity Needs for the Residential Sector

This section explains how the Model Plan's inventory of residential conservation and solar measures is expected to influence electricity consumption over the next 20 years. This forecast, which is broken down into five-year time periods, consists of the sum of electricity needs for the following end uses: (a) space heat, (b) water heat, (c) lighting, and (d) electrically powered appliances, including clothes washers, dishwashers, clothes dryers, cooking equipment, refrigerators, freezers, televisions, and central and room air conditioners. For almost every end use, a low and high demand scenario was prepared. The high demand case is based on easily achieved conservation retrofits of existing stock and minimum performance standards for new stock. Conversely, the low demand case is based on more aggressive retrofitting and stronger, "state of the art" performance standards.

The forecast does not rely on energy savings from behavioral changes, although -- as explained earlier -- we strongly advocate educational programs designed to improve citizens' energy management skills. Only in the low demand case for clotheswashers do we assume that behavioral changes -- toward more warm water washes -- result in electricity savings. As a conservatism, in both demand cases for space heating, we reduce projected savings from retrofitting homes, on the assumption that residents will increase their thermostats as their utility bills decrease. The full calculations and assumptions for both the low and high conservation cases appear in Appendix 9; we provide here a more general description of the assumptions underlying the residential sector forecast. The energy consumption of each end-use is found by multiplying the number of households by (1) the saturation of the electricity-consuming units that comprise the end use category in question; and (2) the amount of electricity each unit consumes. Population estimates, plus the number of households for each five-year interval and the number of persons per household, appear in Table R-1. Estimates are taken from BPA data, and represent the entire Pacific Northwest region.

The simplified energy consumption equation described below is fairly straight-forward except when new units enter the existing stock with different energy consumptions than those of older units. To differentiate new and old stock, we used a mathematical formula called an "exponential decay model," which accounts for the fact that units wear out and are replaced over time. Once the proportions of new and residual stock were determined, each could be multiplied by their respective energy consumptions to find the weighted average energy consumption per unit for each year.

TABLE R-1

Residential Characteristics

	Number of Households x 10^6	Population x 10^6	Persons/ Household
1975	2.419	6.893	2.85
1979	2.907		
1980	2.950	7.969	2.70
1985	3.332	8.567	2.57
1990	3.785	9.392	2.48
1995	4.118	10.033	2.44
2000	4.432	10.587	2.39
2005*	4.550	10.900	2.39

*extrapolations

The following discussion briefly describes the assumptions and methodologies used to project end use energy needs for (a) space heating, (b) water heating, (c) lighting, and (d) appliances. A more extensive presentation is found in Appendix 9.

i. Space Heating

Space heating requirements for electrically-heated homes were broken into two basic groups: existing homes, some of which will install conservation measures to reduce space heating needs, and new homes, which will be built to conform to revised and strengthened building codes. We used the decay model described above, and BPA estimates of the percentage of new homes that would opt for electric space heat, to determine the number of electrically-heated homes for future years.

Eligible homes existing in 1979 will adopt parts of the Model Plan "retrofit package," which includes insulating to R-49 ceiling, R-11 (and some R-19) wall, R-38 floor, reducing air infiltration, and installing triple-glazing and heat pumps. Our projection of the impact of retrofits reflects a detailed assessment of the retrofitting potential in Northwest homes. We used a BPA-sponsored Northwest residential survey to determine the current efficiency-related characteristics of households in the region.* Houses that already have R-11 ceiling insulation, for example, are treated as potential candidates for R-11 to R-49 retrofits. Certain housing types, due to their structure, are unsuitable for some retrofits. For example, all mobile homes and multi-family households were omitted from the estimates of floor and ceiling insulation potential. Similarly, all flat-roofed homes were excluded from the pool deemed eligible for ceiling retrofits. Thus, anticipated savings from each measure reflect both what is already installed and what is possible to install, given the best available profile of Northwest households. Potential savings are further reduced to reflect the likelihood that some eligible households will decline to install some or all appropriate measures. Accordingly, the forecast produces an estimate of retrofit potential that is calculated separately for each measure, accounts for non-participants, addresses structural limitations, excludes unlikely retrofits, and is based on data specific to the region.

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*Elrick & Lavidge, Inc., Pacific Northwest Residential Energy Survey, July 1980, DOE/BP-13061-4.

As a further conservatism, we never assume 100% implementation of even the down-rated retrofit potential described above. For the high demand case, we assumed that 2% of the total achievable savings from the retrofit package would be realized by 1980, 9% by 1985, 39% by 1990, 54% by 1995, 60% by 2000, and 65% by 2005. For the low demand case, 2% of the achievable savings would be realized by 1980, 25% by 1985, 70% by 1990, 90% by 1995, 95% by 2000, and 97% by 2005.* Additionally, for the low demand case, we assumed that half of the heat pumps included in the retrofit package would be more efficient than the heat pumps in the low conservation case (a COP of 3.15 instead of 2.2).

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*Under this methodology, penetration rates for individual measures are quite modest, measured against the total stock of electrically-heated homes. Illustrative percentages, for the high and low demand cases respectively, are: R-49 ceiling insulation -- 21% and 37% (1990), 32% and 51% (2000); infiltration reduction -- 29% and 52% (1990), 45% and 71% (2000); space heat pumps -- 20% and 36% (1990), 31% and 48% (2000).

Our calculations assume that unretrofitted houses, due to high fuel bills, keep their thermostats at the current average settings reported in the BPA survey, while retrofitted homes use so little electricity that residents boost their thermostats by an average of 19%.

As noted above, the retrofit package applies only to homes built prior to 1980. Homes built from 1980 to 1985 are assumed to be similar to homes built between 1975 and 1979, except that 15% in the high demand case and 40% in the low demand case will have heat pumps. For construction after 1985, we assume compliance with regional building codes, which brings space heating consumption to 2.0 kWh/ft^2 in the high demand case and 1.0 kWh/ft^2 in the low demand case.

This methodology derives space heating consumption when electricity is used as the primary heating fuel. We made no adjustments to account for use of wood as a supplementary fuel in electric-heat homes, or to account for electricity use as a secondary heating source in other homes, since these factors can be assumed to offset each other. BPA's Pacific Northwest Survey indicates that wood is used as a secondary fuel by 10.2% of Northwest homes, while electricity supplements other heating systems in 10.7% of homes.

TABLE R-2

Space Heat

Energy Consumption x 10^6 kWh

	1980	1985	1990	1995	2000	2005
High Demand Case	19,176	21,347	19,989	19,317	19,151	18,662
Low Demand Case	19,176	19,799	16,755	15,296	14,764	14,239

ii. Water Heating

Total energy consumption for water heating is the sum of the energy required to heat water for personal and miscellaneous use, dishwashers and clothes washers, and the energy required to maintain hot water in the holding tank -- called the "standby energy." In turn, these requirements are dependent upon the amount of electricity needed to heat a given quantity of water (expressed in kWh/gal). Therefore, the first step for determining water-heating electricity consumption is to find the relative proportions of resistance water heaters and heat pump water heaters at any given time, which will determine the average water heating efficiency. If the gallons of hot water needed by each end use is multiplied by the heating efficiency of the water heater stock, the result represents total kWh used for hot water.

(a.) Composition of Water Heaters

Traditional resistance water heaters use an average of 0.2307 kWh to heat one gallon of water. Water heat pumps are approximately twice as efficient, with average needs of 0.1154 kWh/gallon. Solar units with back-up resistance heat should do at least as well. We projected different distributions of the three types of water heaters for both conservation cases at each five-year interval based on the following assumptions:

High Demand Case

(1) Between 1980 and 1985, 30% of new water heaters, whether installed in new or existing housing, are heat pumps or solar units.

(2) From 1985 to mid-1987, 90% of new housing installs heat pumps or solar units, while 100% of worn-out solar units or heat pumps and 80% of worn-out resistance water heaters are replaced by heat pumps or solar units.

(3) After mid-1987, heat pumps or solar units are used in all new construction and all replacements (of heat pumps, solar units, and resistance water heaters).

Low Demand Case

(1) Between 1980 and 1985, 30% of new and replacement water heaters are heat pumps or solar units.

(2) By 1985, 20% of functioning resistance water heaters will be replaced with heat pumps or solar units before wearing out.

(3) After 1985, all new housing construction is built, and all worn-out heaters are replaced, with heat pumps or solar units.

The exponential decay model described at the outset of this section, combined with the above assumptions for each conservation case, yields the kWh/gallon averages listed below.

TABLE R-3

Energy Consumption of Water Heating Stock
(in kWh/gallon)

	1980	1985	1990	1995	2000	2005
High Demand Case	0.2307	0.2136	0.1689	0.1440	0.1303	0.1242
Low Demand Case	0.2307	0.1940	0.1554	0.1368	0.1270	0.1220

(b.) Energy Consumption for Personal and Miscellaneous Use of Hot Water

An average of 8 gallons/person/day for personal and miscellaneous water use was used to derive the gallons/household/year for each five-year interval of both the high and low demand forecasts (8 gallons/person/day x persons/household x 365 days/year). This was multiplied by the kWh/gallon for that year and forecast, and by the number of electric water heaters (number of households x saturation from BPA estimates) to arrive at a total energy consumption per year for personal and miscellaneous use.

For both demand cases, the kWh/year saved by low- and super-low-flow showerhead devices was subtracted from the total energy consumption. The low-flow showerhead saves 2.5 gallons of the average 5 gallons of hot water/person/day used for showering purposes, leaving a consumption of 2.5 gallons/person/day. Super-low-flows produce additional savings of 2.0 gallons/person/day over low-flow devices.

For both cases, low-flow devices were assumed to be included in homes built after 1985, while pre-1986 housing stock was assumed to have a 30% saturation by 1985, 60% by 1990, 80% by 1995, 85% by 2000, and 87% by 2005. Super-low-flows were assumed to appear in houses by 1990, and to saturate 2.3% of houses with heat pump water heaters by 1990, 3% by 1995, 4% by 2000, and 4.3% by 2005. Saturations for homes with resistance water heaters reach 14%, 32%, 40%, and 43%, respectively. Although saturations of showerhead devices are the same for both demand cases, the composition of water heaters (and thus the kWh/gallon) is different, as is the number of heat pumps on which the saturation of super-low-flow devices is based.

In addition, for the low demand case, a 10% reduction of the total energy used was assumed for 1985, and 15% for subsequent years, to account for the installation of low-flow plumbing fixtures other than showerheads.

(c.) Hot Water Needs of Dishwashers and Clothes Washers

The calculations for dishwashers and clothes washers rely on the gallons of hot water used per cycle, the number of cycles used in a household every year, and the amount of energy required to heat 1 gallon of water (discussed in "Composition of Water Heaters" above). As the number of persons/household decreases with time, so does the number of cycles.

For both demand cases we assumed that the gallons used/cycle would decrease as more efficient models entered the market. For the low demand case, we additionally assumed that households increasingly would opt for cold and warm water washes when using clothes washers, thus reducing hot water needs. Accordingly, the figure for gallons of hot water per cycle for clothes washers was reduced 10% in 1985, 30% in 1990, 40% in 1995, 45% in 2000, and 50% in 2005 for the low demand scenario. Our estimates of saturations for dishwashers are taken from BPA's Pacific Northwest Survey, and equal 49.8% for 1980 and 80% for new housing constructed after 1980. Clothes washer saturation is also from the Pacific Northwest survey; it holds constant at 77.9%.

(d.) Standby Energy Consumption

Standby energy use varies depending on the average efficiency of water heaters, whether the heating tank is located in a heated or non-heated area, and the amount of insulation surrounding the tank.

Saturations of electric water heaters were taken from BPA estimates; the proportion in heated and non-heated areas was taken from the Pacific Northwest Survey and held constant. The efficiency of water heaters (in kWh/gallon) for each five-year interval is described in the "Composition of Water Heaters" section above, and differs for the two demand cases.

The real key, however, to the difference between the low and high demand cases lies in the amount and R-value of insulation levels surrounding the tanks. For both demand cases, we assume that four levels of water heater insulation appear over the forecast period: uninsulated tanks, R-7, R-11, and R-19. The proportions of each insulation level for each conservation case were calculated based on the following assumptions:

High Demand

(1) Water heater retrofits occurring before 1980 are with R-7 and reach 25% saturation by 1980.

(2) Retrofits occurring from 1980 to 1985 are with R-11 and reach 30% of the stock not retrofitted by 1980.

(3) All heat pump or solar water heaters are insulated to R-19.

(4) R-19 will be installed around uninsulated residual stock at the following levels: 15% by 1990, 25% by 1995, 30% by 2000, and 33% by 2005.

Low Demand:

Assumptions are the same as in the high case except R-19 insulation saturations in item 4 are 20% by 1990, 30% by 1995, 33% by 2000, and 35% by 2005. Of course, the number of heat pumps in the water heater stock is greater in the low demand case, and so R-19 retrofits are also more numerous than in the high case.

(e.) Total Energy for Water Heating Purposes

As mentioned above, the total energy required to heat water is the sum of the four categories -- personal and miscellaneous use, dishwasher use, clotheswasher use, and standby energy use -- that are described above. For the low demand case, we assume an additional 5% savings in 1985, 9% in 1990, 11% in 1995, 13% in 2000, and 14% in 2005 from residences that install both solar and heat pump water heaters due to large hot water consumption.

The total water heating energy needs for the high and low demand cases appear in the following tables.

TABLE R-4

Total Water Heating Energy Requirements: High Demand Case

$\times 10^6$ kWh/year

	1980	1985	1990	1995	2000	2005
Personal and misc.	4593	4226	3106	2587	2450	2425
Dish-washers	892	994	807	702	660	633
Clothes-washers	3141	3159	2205	1751	1520	1407
Standby energy	2728	2259	1453	972	732	608
Total	11,354	10,638	7571	6012	5362	5073

TABLE R-5

Total Water Heating Energy Requirements: Low Demand Case

$\times 10^6$ kWh/year

	1980	1985	1990	1995	2000	2005
Personal and misc.	4593	3456	2438	2106	2043	2033
Dish-washers	892	903	741	667	642	623
Clothes-washers	3141	2590	1422	996	815	691
Standby energy	2728	1598	991	719	601	527
Additional heat pump & solar savings (subtracted from total)	0	427	503	494	533	542
Total	11,354	8120	5089	3994	3568	3332

iii. Lighting

Lighting energy use is projected by dividing housing into post-1985 construction, which uses 556 kWh/year (325 kWh/year in the low demand case), and pre-1985 houses, which are eligible for retrofitting. The lighting package in the high demand case assumes that four incandescent bulbs are replaced with fluorescent bulbs and two incandescent fixtures are replaced by fluorescent fixtures in each household. Once the retrofit package is accomplished, it saves 321 kWh/year over a pre-retrofit average (in 1980) of 1000 kWh/year. In the low demand case, the retrofit package duplicates the high demand case, except that two additional incandescent bulbs are replaced with fluorescents. This lowers lighting needs for retrofitted pre-1985 housing by an additional 101 kWh/year, compared with the high demand retrofit package. Sixty percent of the retrofit package is assumed to be accomplished by 1985, 80% by 1990, 85% by 1995, 90% by 2000, and 93% by 2005 in the high demand case. The low demand case assumes 60%, 85%, 90%, 95%, and 97% implementation, respectively.

TABLE R-6

Lighting Energy Consumption
x 10^6 kWh/year

	1980	1985	1990	1995	2000	2005
High Demand Case	2950	2689	2695	2800	2903	2917
Low Demand Case	2950	2489	2226	2220	2216	2189

iv. Appliances

Appliance energy use is the sum of the total energy consumption of electrical appliances. Total appliance energy use for both the low and high demand cases appears in tables R-7 and R-8.

(a.) Motor Energy of Dishwashers and Clothes Washers

Based on federal testing procedures, the energy for heating water was separated from the energy used for driving motors for both dishwashers and clothes washers. Once derived, the motor energy use per cycle was multiplied by the cycles per year and the number of dishwashers or clothes washers. The kWh used per cycle for each appliance was assumed to remain constant over the forecast period and was the same for both demand cases. As in the water heating calculations, the number of cycles per household per year is assumed to decrease as the number of people per household decreases.

(b.) Clothes Dryers

As with dishwashers and clothes washers, the energy used by clothes dryers is dependent upon the kWh/cycle and the number of cycles/household/year. For this appliance, we again reduce the cycles/household/year as persons/household decrease. We also assume that increases in efficiency of new stock after 1985 will reduce the kWh/load by 10%. Both low and high demand cases are the same for this appliance.

(c.) Electric Cooking Equipment

For the low and high demand cases, we assumed that the weighted average energy use for cooking equipment up to 1985 is 1200 kWh/year. For the high case, we assume a 10% reduction of this consumption to account for efficient post-1985 new stock. For the low case, we assume the marketing of bi-radiant ovens after 1990 which, conservatively estimated, reduce cooking energy use by approximately 27%. Bi-radiant ovens use radiant heat to cook food.

(d.) Freezers

For the high demand case, we assumed that appliance efficiency standards comparable to those proposed by the Department of Energy would cut post-1985 energy consumption to 65% of 1975 usage or to 835 kWh/year. For the low demand case, post-1987 new freezers enter the stock at 325 kWh/year, reflecting still further efficiency improvements analogous to those described in the section B.2.e.ii above for refrigerators.

(e.) Refrigerators

As with freezers, the difference between the low and high cases lies in the energy consumption of new stock, as described below.

For both demand cases, the energy consumption of new refrigerators installed from 1975 to 1980 is 1600 kWh/year.

From 1980 to 1985, this figure is reduced slightly (by 200 kWh/year) to account for increased average efficiency of recent models, nearly all of which now conform to California efficiency standards.

For the high demand case, after 1985 new refrigerator consumption is 725 kWh/year. This represents the average of the most efficient U.S. refrigerator now on the market (900 kWh/year) and its best Japanese competitor (550 kWh/year). The models used for this calculation reflect our belief that a standard, top-freezer automatic refrigerator is representative of the entire refrigerator stock, which is reasonable because top-freezer automatics used only 12% more than the weighted average for all refrigerators in 1975, and have exhibited more rapid efficiency improvements than other classes since that time.

In the low demand case, new refrigerators enter the market after 1987 at 420 kWh/year.

(f.) Televisions

The two demand cases for televisions are identical. They assume 1900 hours of television watched in each household per year. Total energy consumption for televisions decreases over the forecast period due to increased efficiencies of sets.

Although video games and home computers provide a new way to use televisions, we assume that (1) they have similar energy consumptions, and (2) a person can only engage in one of these activities at a time. Consequently, video games displace television watching to some extent, but result in equivalent energy use.

(g.) Central Air Conditioning

The saturation of central air conditioners (CAC) for both demand cases was assumed to be 7.4% in 1980 and 10.3% thereafter. BPA estimates CAC saturation to be 7.4% in 1980, increasing to 18% by 2000. We believe that with the development of a tighter and better insulated housing stock, central air conditioners will be displaced to a large extent by more economical, less capital-intensive room air conditioners. As a result, for every year in which BPA's estimated saturation of central air conditioners is greater than 10.3%, we transferred the difference to the stock of room air conditioners.

Average 1980 consumption is assumed to be 1100 kWh/year. The energy consumption of new stock reflects efficiency improvements in the air conditioners, which are based on proposed federal standards. The high conservation case incorporates some improvement beyond the federal recommendations in post-1990 stock.

In order to account for savings in central air conditioning attributable to residential weatherization, we reduce the average energy use by 33% in retrofitted houses and in houses built after 1979, which already are at least partially insulated.

(h.) Room Air Conditioning

The number of room air conditioners was estimated by adopting BPA projections, and adding to them the units that are assumed to displace central air conditioners (see section on central air conditioners, above, for these assumptions).

The energy usage for 1975 stock is taken from Berman *et al.*, Electrical Energy Consumption in California, 1976. Berman and his associates derive 917 kWh/year for 550 hours of annual use, which we have adjusted downward to reflect an assumed 250 hours of annual use in the Pacific Northwest. The post-1980 energy use of new stock is found by using the energy efficiency ratios in the proposed federal appliance standards; we assume that comparable standards will be adopted by the Northwest states. For the low demand case, we assume some improvement beyond the federal recommendations for new stock after 1990.

(i.) "Miscellaneous" Appliances

The forecast includes a per-household allowance of 478 kWh/year for "miscellaneous" appliances such as hair dryers and toasters, which consume relatively small amounts of electricity.

TABLE R-7

Appliance Energy Use: High Demand Case

(x 10^6 kWh/year)

	1980	1985	1990	1995	2000	2005
Motor-dishwasher	169	204	244	275	302	316
Motor-Clothes washer	104	113	124	134	141	145
Clothes dryer	1702	1872	2006	2084	2220	2279
Cooking	3359	3818	4081	4289	4521	4580
Freezers	1901	2200	2387	2504	2708	2793
Refrigerators	4613	5321	5167	5047	4979	4854
Televisions	974	984	712	605	541	487
Central Air Conditioners	238	333	313	304	305	299
Room Air Conditioners	137	149	171	213	269	279
TOTAL	13,197	14,994	15,185	15,455	15,986	16,032

TABLE R-8

Appliance Energy Use: Low Demand Case

(x 10^6 kWh/year)

	1980	1985	1990	1995	2000	2005
Motor-dishwasher	169	204	244	275	302	316
Motor-Clothes washer	104	113	124	134	141	145
Clothes dryer	1702	1872	2006	2084	2220	2279
Cooking	3359	3818	4081	4139	4256	4237
Freezers	1901	2200	2222	2050	1930	1802
Refrigerators	4613	5321	5368	4763	4309	3915
Televisions	974	984	712	605	541	487
Central Air Conditioners	238	326	288	262	250	238
Room Air Conditioners	137	149	146	156	180	180
TOTAL	13,197	14,987	15,191	14,468	14,129	13,599

b. Electricity Needs for the Commercial Sector

i. Overview

Before preparing a forecast of energy needs in the commercial sector, we reviewed a BPA-commissioned survey of commercial buildings in three Northwest communities (Seattle, Portland, and the Tri-Cities area). Our hope was to secure an inventory of end uses in the commercial sector, differentiated by building type (e.g., office buildings, retail stores, hospitals, warehouses, etc.) Unfortunately, although it provides the best available data, the survey results do not permit development of such an inventory.

In general, survey responses varied widely for similar building types among the three cities, while differences across building types in the same city often appeared negligible. Sample sizes for individual building types were frequently five or less, and some of the reported results were simply impossible (e.g., 104% of "food sales buildings" constructed before 1975 consumed energy for space heating). As a result, we decided not to try to differentiate among different building types for forecasting purposes, but rather to develop projections of energy consumption per square foot on an "aggregated" basis.

ii. Commercial Sector Buildings

Total commercial consumption is derived by multiplying the number of square feet in commercial buildings by the energy consumption per square foot (UEC) and subtracting the savings accomplished by retrofitting pre-1985 buildings. Total square footage for both the high and low demand cases is taken from BPA,* with 1975 and 2005 figures extrapolated.

For both demand cases the UEC for 1975 and 1980 is simply the amount of electricity sold to commercial customers divided by the floorspace then in existence. We assume that the average energy consumption of buildings built between 1980 and 1985 will be equal to that of new construction from 1975 to 1980.**

For buildings constructed after 1985, we assume that revised Northwest building codes will reduce average consumption to 9 kWh/ft^2/year. This is the sum of (1) a 6 kWh/ft^2 basic allowance, which includes lighting (2 kWh/ft^2), heating, cooling, ventilation, elevators, and some hot water; (2) 1.3 kWh/ft^2 for process hot water (e.g., dishwashers); and (3) 1.7 kWh/ft^2 for process electricity

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*Bonneville Power Administration, Forecasts of Electricity Consumption for the Pacific Northwest, Appendix II, p. B-91, May 1982.

**The new UEC for 1975 to 1980 is derived using an exponential decay model with lifetime equal to 50 years and the known weighted UECs of 1975 and 1980. The new UEC -- 16.9 kWh/ft^2/year -- is used for 1980 to 1985.

(e.g., copiers, computers, typewriters). For the low demand case, we assume further that 20% generic improvements in lighting and process hot water electricity use, plus a reduction to 2 kWh/ft^2/year for heating, ventilating, and air conditioning use, will reduce average consumption of buildings constructed after 1995 to 6.3 kWh/ft^2/year. Our numbers incorporate the conservative assumption that all new buildings will use electricity as their primary energy source.

We treat all buildings completed prior to 1985 as candidates for retrofit programs. For both the high and low demand cases, energy needs after retrofitting are projected for a given future year in two steps. First, we multiply three values: (1) the quantity of pre-1985 square footage still in existence; (2) the average UEC of buildings in existence in 1985 ; and (3) the percentage of floorspace that is assumed to have been retrofitted by each future year. We assume that, for the high demand case, 50% of surviving pre-1985 stock will achieve 40% savings by 2005, while an additional 30% of surviving pre-1985 stock will achieve 15% savings. For the low demand case, over the same period, we assume that 70% of surviving pre-1985 stock will achieve 40% savings, while 20% of surviving pre-1985 stock will achieve 15% savings. This translates into 24.5% savings and 31% savings by 2005 in the high and low demand cases. In each case, 20% of the 2005 potential is realized by 1985, 70% by 1990, 90% by 1995, and

COMMERCIAL ENERGY CONSUMPTION

High Demand Case

	Square feet (x 10^6)	New UEC(a)	Weighted UEC(a)	Energy Without Retrofits(b)	Pre-mid 1985 Retrofits(b)	Total(b)
1975	1360	NA	13.31	18,107	NA	18,107
1980	1641	16.85	14.20	23,302	NA	23,302
1985	1925	16.85	14.81	28,509	1397	27,112
1990	2216	9.0	13.56	30,049	4419	25,630
1995	2513	9.0	12.63	31,739	4918	26,821
2000	2853	9.0	11.89	33,923	4694	29,229
2005	3120	9.0	11.39	35,536	4464	31,072

Low Demand Case

	Square feet (x 10^6)	New UEC(a)	Weighted UEC(a)	Energy Without Retrofits(b)	Pre-mid 1985 Retrofits(b)	Total(b)
1975	1360	NA	13.31	18,107	NA	18,107
1980	1641	16.85	14.20	23,302	NA	23,302
1985	1925	16.85	14.81	28,509	1766	26,724
1990	2216	9.0	13.56	30,049	5592	24,457
1995	2513	9.0	12.63	31,739	6500	25,239
2000	2853	6.3	11.34	32,352	6202	26,150
2005	3120	6.3	10.47	32,666	5900	26,766

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a. kWh/ft^2 b. 10^6 kWh/year)

95% by 2000.* The retrofit savings are then subtracted from projected pre-retrofit consumption in the commercial sector, to calculate the sector's total electricity needs over the 1985-2005 period.

iii. Street Lighting

BPA estimates that the region used 795.9 x 10^6 kWh for street lighting in 1981. We use this figure as a proxy for 1980 street lighting needs, on the assumption that conservation programs initiated over the 1980-1981 period offset growth in the number of street lights.

Street lighting is related to the number of streets in the region which are, in turn, related to housing density and numbers. We therefore assume that street lighting energy use will increase at approximately the same rate as the number of households in the region. Pre-conservation street lighting energy use for a future year is derived by multiplying total energy demand in 1980 by a factor that represents the number of households in the future year divided by the number of households in 1980.

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*The plausibility of the "bottom line" can be assessed on an end use basis: on average, in the Model Plan's high demand forecast, commercial buildings constructed prior to 1985 will consume 12.3 kWh per square foot in 1990. For even more optimistic projections, see California Energy Commission, Electricity Tomorrow 180 (1981).

Regionwide savings, obtained by replacing existing lights with high pressure sodium (HPS) or other efficient lamps, are based on data from a recent Lawrence Berkeley Laboratory study.* Those data indicate that HPS lamps save, on average, 42% of the energy used by mercury lamps, while HPS lamps with solid state ballasts save 59%.

BPA is currently involved in programs that are designed to convert approximately 75% of streetlights in the region to high efficiency lamps by 1985. We adopt this projection, and assume that each replacement effects savings of 42%. By 1990, we assume that the remaining 25% of streetlights have been fitted with solid state ballast HPS lamps (saving 59%), resulting in 46.3% total savings. We assume that, by the year 2000, all streetlights will use solid state ballasts, reducing current average consumption by 59%. Savings for 1995 are extrapolated from the 1990 and 2000 figures.

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*Verderber, R.R. and O. Morse, "Energy Savings with Solid-State Ballasted High-Pressure Sodium Lamps," LBL-12595, April 1981.

Street Lighting

	Pre-Conservation Energy Use (kWh x 10^6)	Percent Savings	Post-Conservation Energy Use (kWh x 10^6)
1975	654.2	0	654
1980	795.9	0	796
1985	899.0	31.5	616
1990	1,021.2	46.3	548
1995	1,111.0	52.7	526
2000	1,195.7	59.0	490
2005	1,227.6	59.0	503

iv. "Other" Commercial Sector Electricity Needs

BPA's historical sales data include a category called "other," consisting primarily of electricity used for street lighting, the utilities' and BPA's own needs, and sales to public authorities, which include requirements of schools and city buildings. Street lighting use has been treated separately in the Model Plan forecast, as explained above. Consequently, the residual end-users for electricity in the "other" category consist primarily of commercial-type buildings.

Although we could classify and model the "other" category in our commercial sector analysis, we conservatively assume that electricity use for "other" remains constant over time.

Realistically, conservation measures will probably become prevalent in municipal buildings, schools, and utility offices; although such savings would more than offset any consumption growth associated with an increase in the number of such buildings, we conservatively hold "other" demand constant at 1980 levels -- 1.676 billion kWh/year.*

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*Compare the treatment of "other" uses in the Washington Energy Research Center's Independent Review of WNP-4 and 5 (1982). The Washington study holds "other" constant even under scenarios that assume no new commercial sector conservation programs.

5. Industrial Sector

In the postwar era, declining real prices for electricity have been a mainstay of industrial growth in the Pacific Northwest. However, recent events have eliminated the prospect of expansion fueled by cheap energy. The region is now experiencing reduced industrial electricity consumption through production cutbacks and business failures. Forecasters and utilities need to recognize what plant managers understand all too well: business as usual, in the form of a return to robust growth in electricity consumption, is not an option. The region's industries will cut back on electricity consumption -- either through curtailment or through efficiency improvements. The Model Plan seeks to promote the latter course, as the only viable route to expanded production and employment in the industrial sector.

In 1980, industry consumed 40 percent of all electricity in the Pacific Northwest.1/ The aluminum sector accounted for nearly 40 percent of this demand;2/ other leading industrial consumers were pulp and paper mills, inorganic chemical industries (especially chlor-alkali and phosphorus), and the lumber and wood industry.3/

In its 1981 assessment of regional conservation potential (cited below as "Conservation Assessment"), BPA predicted that, even after accounting for all "potentially achievable" conservation through the year 2000, electricity demand by the industrial sector would rise by 81% in the next two decades.[4/] Since the Conservation Assessment was published, BPA and its utility customers have revised projected growth rates downward, although -- as we will demonstrate -- the new levels are still probably excessive. We will demonstrate that, even under the highest of these revised industrial growth rates, a reasonable scenario of regional industrial energy conservation would enable the sector to reduce its electricity consumption by 2005 to 91% of current levels. In the more likely event of somewhat lower growth rates, industrial needs would decline by 35% over that period. These totals assume contributions by cogeneration facilities installed at some industrial sites, as explained below.

Our analysis proceeds in five phases. First, we describe current industrial electricity demand in terms of its end-use structure. This is accomplished by allocating consumption data among "Standard Industrial Code" (SIC) categories, which are listed on the next page, and then identifying the major end uses of electricity within each category; these end use data form the basis for our conservation projections. Second, we show why many growth rates now projected by utilities are unrealistically high, and we develop alternative, more plausible growth rates. To make explicit the range of uncertainty, we group all the highest projected growth rates in one scenario and the rates we deem more probable in a second

Major SIC Categories in the Pacific Northwest

SIC	Description
20	Food and Kindred Products
24	Lumber and Wood Products
26	Paper and Allied Products
28	Chemical and Allied Products
29	Petroleum and Coal Products
32	Stone, Clay, Glass and Concrete Products
33*	Primary Metal Industries
37	Transportation Equipment

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*Divided, in later parts of this section, into 33A (Primary Aluminum) and 33B (Other Primary Metal Industries).

scenario. Third, we identify a partial inventory of cost-effective industrial conservation measures. Fourth, we describe regulatory and incentive programs that would ensure widespread use of these and related measures. Finally, we present a unified forecast of industrial sector needs following implementation of the Model Plan, which includes an estimate of the regional potential for cogeneration.

a. Current Industrial Electricity Consumption

No entirely satisfactory end-use data base is now available for the industrial sector in the Pacific Northwest, for at least two reasons. First, many industries regard their electricity consumption data as proprietary information, which they refuse to release for public scrutiny. Moreover, even if all industries were willing to publish consumption data, most analysts would lack the enormous resources needed for assembling and analyzing the results. Thus, current estimates of regional end-use electricity consumption must rest on either extrapolations from a few plants or inferences from nationwide studies.

Using these crude tools, Synergic Resources Corporation (SRC) recently reported to BPA its estimates of 1977 end-use electricity consumption by Northwest industries. Analyzing local plant surveys, regional employment data, and national industrial consumption data, SRC developed a data base containing nineteen categories of electricity end-use.[5/] The SRC report has been criticized by BPA's industrial customers,[5a/] but they have produced no alternative data base. Since there is no dispute about the total industrial demand that SRC divided among end uses, any errors in the SRC estimates cancel out over the sector as a whole: for every underestimate of consumption by one end use category, there is a compensating over-estimate. The Model Plan's projections of sector-wide conservation potentials are affected only if -- as no reviewer has suggested -- SRC systematically "shifted" electricity consumption into end uses characterized by relatively high inefficiency. We did not rely exclusively or even primarily on SRC's own estimates of conservation potentials, which have been the target of most of the criticisms directed at the SRC report.[5b/]

We began our analysis by collapsing SRC's nineteen industrial end use categories into five, as described below, to create end-use categories that correspond to the conservation potentials we discuss in subsections c and e. Table 1 also presents these five categories of electricity end use for eight two-digit SIC code industries, which account for over 97% of all regional industrial consumption. Within the "mechanical drive" category are nine of the SRC designated end-uses: cleaning/ washing, crushing/grinding/pressing, cutting/ trimming/milling, environmental, gas compression, motors/pumps,

TABLE 1

1977 Electricity End-Use Matrix for Pacific Northwest Industry

(10^6 kWh)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	2,087	1,789	141	-	111	46
24	4,770	4,604	-	-	166	-
26	11,024	5,480	5,544	-	-	-
28	7,998	1,209	5,342	1,406	-	41
29	942	942	-	-	-	-
32	697	429	268	-	-	-
33A	25,721	2,834	914	21,938	5	30
33B	2,514	413	2,055	10	-	36
37	906	225	159	69	352	101
SUBTOTAL	56,659	17,925	14,423	23,423	634	254
OTHER	1,657					
GRAND TOTAL	58,316					

SOURCE: Synergic Resources Corporation, Industrial Process Energy End-Use Data Base for the Pacific Northwest, at I-14 and III-90 (Vol. I)(May 1981).

packing/canning, refrigeration, and separating/sizing/filtering. Since these end-uses represent motorized functions, they are all subject to analogous conservation measures involving improvements in motor efficiency. Within the "process heat" category are four SRC designated end-uses: cooking/heating, drying, furnace, and hot working. All four types of consumption can be reduced through use of waste heat recovery methods and computerized controls. Two SRC categories that we have treated individually are electrolysis and lighting. Within our "Other" grouping are the four remaining SRC categories: space cooling, space heating, steam generation/cogeneration, and welding. These uses are relatively insignificant, in terms of electricity consumption, and we have not analyzed conservation measures specifically applicable to them.

b. Anticipated Growth in Electricity Demand Without New Conservation Programs

To gauge how industry's end-use needs in 1977 are likely to change by the year 2005, we must examine both how demand actually grew between 1977 and 1980 (1981 data are not yet available) and how it might grow between 1980 and 2005. BPA data show that the region's industries used 59,948 million kilowatt-hours in 1980.[6/] Since the corresponding figure for 1977 was 58,316 million kilowatt-hours, electricity consumption grew by only 0.92% per year during the three-year period. We applied this growth rate to the 1977 SRC data to estimate consumption by end-use category in 1980.

To predict industrial electricity demand in future years, BPA's Conservation Assessment used the Pacific Northwest Utilities Conference Committee's (PNUCC) projection of sales growth rates, which "reflect[] the diverse set of assumptions and methodologies used by each of the utilities in preparing their individual forecasts."[7] With these growth rates, BPA's "base case" -- a scenario that assumes virtually no conservation[7a] -- envisions industrial electricity consumption in the year 2000 that is more than double the 1980 total. The long-term compounding annual growth rates vary from a low of 1.45% for petroleum to a high of 7.1% for pulp and paper. As the discussion below explains, these growth rates are far too high.

More recently, BPA has been using different growth projections to analyze regional energy demand, drawn from an updated PNUCC model and the Applied Economics Associates' Northwest Energy Policy Project (NEPP) model. Table 2 compares the long-term annual growth rates in each of these models with the older BPA/PNUCC estimates. While the growth rates in the earlier PNUCC forecasts tend to be higher than the new PNUCC or NEPP growth rates, there are important exceptions. NEPP, for example, ranks highest in its predictions regarding chemicals (SIC 28) and petroleum (SIC 29). The variance in growth rates

TABLE 2

LONG-TERM COMPOUNDING ANNUAL GROWTH RATES FOR MINIMAL CONSERVATION "BASE CASE"
(1980-2000)

SIC	Original PNUCC[a]	Updated PNUCC[b]	NEPP[c]
20	3.62	3.27	0.21
24	3.71	2.19	0.32
26	7.10	2.65	(0.47)
28	3.08	0.52	4.03
29	1.45	0.86	2.48
32	see "OTHER"	3.64	3.14
33	1.51	1.42	1.16
37	see "OTHER"	3.98	1.85
OTHER	4.50	4.19	2.04

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a. BPA, Draft Technical Assessment of the Potential for Conservation and End-Use Renewable Resources in the West Group Area, 1980-2000, at 66 (April, 1981).

b. BPA Run of PNUCC Model, 19 November 1981, p. 13. "Other" includes the "machinery" and "electric machinery" categories.

c. BPA Run of NEPP Model, 5 November 1981.

TABLE 3

COMPOUNDING ANNUAL GROWTH RATES FOR THE MINIMAL CONSERVATION "BASE CASE"

1980-1985

SIC	PNUCC[a]	NEPP	LOW	HIGH
20	5.25	0.48	0.48	5.25
24	3.16	2.52	2.52	3.16
26	6.49	-0.52	-0.52	6.49
28	4.08	6.22	4.08	6.22
29	5.58	5.19	5.19	5.58
32	6.38	4.15	4.15	6.38
33B	2.23	1.89	1.89	2.23
37	6.81	3.91	3.91	6.81
OTHER	5.15	2.89	2.89	5.15

1985-1990

SIC	PNUCC[a]	NEPP	LOW	HIGH
20	2.95	-0.37	-0.37	2.95
24	2.21	-0.29	-0.29	2.21
26	2.57	-0.52	-0.52	2.57
28	0.92	3.60	0.92	3.60
29	2.83	2.61	2.61	2.83
32	4.16	2.87	2.87	4.16
33B	2.91	2.34	2.34	2.91
37	3.43	1.53	1.53	3.43
OTHER	3.91	2.03	2.03	3.91

TABLE 3 (continued)

1990-1995

SIC	PNUCC[a]	NEPP	LOW	HIGH
20	1.61	-0.04	-0.04	1.61
24	0.73	-1.72	-1.72	0.73
26	-0.47	-1.16	-1.16	-0.47
28	-2.36	1.09	-2.36	1.09
29	-3.16	-1.21	-3.16	-1.21
32	0.46	0.92	0.46	0.92
33B	0.02	-0.20	-0.20	0.02
37	1.71	-0.74	-0.74	1.71
OTHER	2.49	0.97	0.97	2.49

1995-2000

SIC	PNUCC[a]	NEPP	LOW	HIGH
20	1.27	0.67	0.67	1.27
24	1.17	0.64	0.64	1.17
26	0.34	0.53	0.34	0.53
28	-0.98	3.20	-0.98	3.20
29	-2.01	2.15	-2.01	2.15
32	1.13	3.06	-1.13	3.06
33B	0.05	0.08	0.05	0.08
37	1.39	1.81	1.39	1.81
OTHER	2.28	1.27	1.27	2.28

a. PNUCC figures are actually for the intervals 1980-84, 1985-89, 1990-94, and 1995-99.

between models is large in both its magnitude and its implications for consumption estimates. In the pulp and paper sector, for example, the 7.1% growth rate used initially by BPA yields a level of consumption in the year 2000 more than four times that produced by the -0.47% growth rate used in the NEPP model. Moreover, the discrepancies follow no predictable pattern over the various SIC sectors. These models evidently reflect the idiosyncratic views of their programmers, each of whom has very different expectations about the extent and concentration of future economic growth in the Pacific Northwest. Rather than choose between the NEPP and PNUCC growth rates, we decided to develop high and low demand scenarios, each of which draws on both NEPP and PNUCC estimates. Table 3 shows how we derive five year annual growth rates for the two scenarios. Like PNUCC itself, we have discarded altogether the older PNUCC growth rates that formed the basis for BPA's Conservation Assessment.

Many of the "high" growth rates, and even some of the "low" ones, are likely to prove excessive, especially during the 1980-85 interval. To evaluate the plausibility of growth rates for industrial sector electricity consumption, it is necessary to examine five factors: (1) the rate of economic growth as measured by gross national product (GNP); (2) the rate of industrial value added (IVA) per unit of GNP; (3) the rate of production of energy-intensive materials per unit of

IVA; (4) the rate at which energy substitutes for labor in each unit of production; and (5) the rate at which producers substitute electricity for other forms of energy, and vice versa. While most studies predict a small, steady rise in GNP, they also predict that each unit of GNP will contain both less energy-intensive production and less electricity-intensive production.

The Solar Energy Research Institute's Solar/Conservation Study (hereafter "the SERI study") projected that GNP would grow 2.7% annually between 1978 and 1990 and 2.3% annually between 1990 and 2000 -- an average annual rate of 2.5%.[8/] This assumption is more generous than that of the National Academy of Science's Committee on Nuclear and Alternative Energy Systems Study (CONAES), Energy in Transition, which projected only a 2% growth rate in GNP;[9/] some members of the CONAES team found even this value too high.[10/] Nonetheless, for purposes of this analysis, we accept the higher SERI assumption of 2.5% per year GNP growth.

Even if energy consumption moved in lock-step with GNP growth, industrial consumption would almost certainly lag behind GNP increases in future years; industrial output has grown more slowly than GNP over the past 30 years. The SERI study, drawing on the research of physicists Marc H. Ross and Robert H. Williams, demonstrated that IVA growth and GNP growth have diverged for 30 years; IVA grew 1.1% per year more slowly, on average, from 1950 to 1978, and 0.8% per year more slowly from 1969 to 1978.[11] Ross and Williams expect this diverging trend to continue:

> Industrial activity is likely to grow more slowly over the next two decades than the economy as a whole ... It appears that, as the national income increases, people will spend a larger part of their income for information, communications, recreation, health care and other services requiring relatively little industrial activity.[11a]

Also influencing industrial energy demand will be a decline in the amount of raw materials each unit of industrial output will require. Since 1978, the ratio of basic materials production to IVA declined at 0.5% per year.[12] As Ross and Williams report:[13]

> As a natural adjustment to rising prices, basic materials will play a smaller role in economic growth. There is evidence that saturation effects are also leading in [sic] a declining role for basic materials in the economy. While in the second quarter of this century consumption of important basic materials grew about as fast as the overall economy, ... in the third quarter there was a marked shift away from major basic-materials-intensive activities. This new trend was particularly pronounced in the steel and cement industries. Even in the chemical industry, often viewed as a major growth industry, the consumption of basic materials has grown only about as fast over the last 10 years as total industrial output. ... [T]he curves for feedstocks and three inorganics ... have been almost level since the late 1960s. It is noteworthy that this relative decline in basic materials was already becoming established before the 1970s in the period of declining prices for basic materials, showing that saturation is leading the United States away from materials-intensive activities.

While new consumer products conceivably could be more energy intensive, Ross and Williams conclude that "there are no product innovations on the horizon which might create major requirements for materials and fuels so as to sustain energy and materials consumption relative to economic activity."[14/] Indeed, they note that "[m]ost of the innovative products which are taking off -- light equipment for home and recreational use, information technologies, biomedical technologies, and other services -- have low material and fuel requirements relative to their cost."[15/] A shift toward less materials-intensive industrial activity has significant implications for the sector as a whole, since the high-use subsectors (metals, paper, chemicals, petroleum refining, ceramics, and food) account for 70% of current industrial energy consumption.[16/]

Conceivably, if wages rise faster than energy prices, energy could substitute for labor and increase energy consumption per unit of industrial output. However, following a review of the most recent available economic data, BPA was "not able to find any trend in energy-labor ratios over this period [1971-1976]" for the Northwest region.[17/] BPA did find a slight increase in the ratio of electricity use to labor, but concluded that "it might be reasonable to predict that energy-labor ratios would increase more slowly than a historical trend would suggest."[18/] Moreover, this trend may have been anomalous. The early 1970s was a period of high inflation and commensurate wage increases, which nonetheless saw little change in the Northwest's low electricity prices. In fact, in real dollars, these prices declined steadily. Now, however, Northwest electricity prices are rising much faster than either the rate of inflation or wage increases. Consequently, there seems little basis for projecting any net increase in electricity-labor ratios.

A final concern is whether the region's industries are likely to derive proportionally more or less of their future energy needs from electricity -- the so-called "fuel-switching" issue. Crucial here are the relative prices of electricity and its alternatives (oil, coal, gas, biomass, and solar process-heat equipment). Electricity is unlikely to rise in price more slowly than these substitutes. In theory, the thermodynamic and transmission losses that accompany new electricity use will make it far more expensive to industry than burning primary fuels on-site. Thus, a new nuclear or coal-burning power plant with a delivered cost of approximately 80 mills per kilowatt hour would produce heat at an equivalent cost of $100 per barrel of oil or $16 per million BTU of coal.[19/] Accepting BPA's assumption that, by the year 2000, petroleum products will cost between $33-99 per barrel and coal between $3-5 per million BTU, substitution of electricity for direct use of fossil fuels generally will not make economic sense.[20/] The Pacific Northwest has had an unusually high electricity-to-energy consumption ratio because of its older, cheap hydroelectric plants. Had the region's industries faced higher electricity prices in the past, they would now be producing more energy on-site. By the same token, as electricity prices in the Northwest move closer to the national norm, industries may have a strong incentive to substitute direct fuel use for electricity. BPA itself recognizes a strong potential for "switching" away from electricity in certain industries.[21/] While we are unaware of any persuasive analysis that has suggested a contrary trend, our projections of industrial energy needs will assume, as a conservatism, that no direct fuel burning will substitute for electricity use.

Together, these five historic factors suggest that the growth rate for both energy and electricity consumption -- assuming little or no conservation -- should be well below 3 percent per year. If an appropriate indicator of the growth of industrial energy consumption is GNP growth, then the SERI analysis suggests that a reasonable annual growth rate for "base case" industrial energy consumption should be no higher than 2.7%. If growth in such consumption is synchronized with the national trends that have produced a declining ratio of IVA to GNP, then the Ross and Williams data imply a still lower annual growth rate of 1.9%. And if the sector continues to experience a declining ratio of materials to IVA, the same authorities suggest a maximum rate of 1.4%. As discussed above, these are conservative proxies for base-case electricity growth rates. A typical industry in the United States should therefore experience a growth rate in electricity consumption no higher than 2.7%, and more probably somewhere in the 1.4-1.9% range. Again, this is without any consideration of energy conservation potential. While these national growth rates are, at best, only rough indicators of regional trends, they still suggest benchmarks from which regional growth rates should not stray too far.

In their projection of growth rates of 3-4.5% for food, lumber, chemicals and other industries and of 7.1% for pulp and paper, the studies reviewed for the BPA Conservation Assessment apparently anticipated a regional economy divorced completely from all relevant trends in the national economy. The 7.1% growth rate was particularly implausible; it meant that, by the year 2000, the pulp and paper sector would consume as much electricity as the entire aluminum industry. BPA properly expressed "concern [that]. . . the projected growth for [pulp and paper] electricity purchases . . . may prove to be high."[22/] PNUCC has since cut this projection substantially, but even the new annual growth rate (1.65%) seems implausible in light of recent studies predicting an extended decline for the Pacific Northwest timber industry. A General Accounting Office (GAO) report summarizing these studies noted that old-growth forests in the region are virtually exhausted, and that new-growth forests will yield less wood per acre than the forests they are replacing.[23/] The GAO concluded that different management practices, such as cultivating federal lands more intensively, "would eventually increase the yield, but under current harvest schedules most of the increase would occur well after the period of immediate shortage, 1985-2020."[24/] Indeed, the official U.S. Forest Service projection is that timber supplies in the Pacific Northwest will drop 18 percent over the period indicated.[25/] This draws in question any forecast based on projected increases in either lumber or paper production.

Low growth rates in electricity consumption are a virtual certainty for the "primary metals" sector, which is dominated by the roster of industries served directly by BPA (DSIs). While primary metal production by the DSIs might increase over the next twenty years, their actual electricity consumption is restricted by contract to an annual increase of one percent for technological allowances.[26/] The primary aluminum DSI contracts, which include one awarded to the proposed Alumax plant now slated for construction in Oregon, permit their holders to demand up to 3397 MW of electric capacity.[27/] Only three-quarters of this total, however, is "firm" demand that belongs in forecasts,[28/] and BPA will not begin delivering the energy earmarked for Alumax (240 average megawatts firm) until 1987. In 1980, BPA was obligated to deliver only 2,308 MW of firm capacity to the primary aluminum DSIs, or 20,232 million kWh. According to the SRC data base, primary aluminum plants account for roughly 91% of total electricity demand in SIC 33, or 26,437 million kWh in 1980.[29/] Thus, primary aluminum plants used 6,205 million kWh of nonfirm energy in 1980 (26,437 million kWh used minus 20,232 million kWh of firm power entitlements). Beyond 1980, for forecasting purposes, we assume that the DSIs will claim five years of technological allowances, beginning in 1981.[30/] This increases BPA's maximum legal obligation to the primary aluminum producers to 21,266 million kWh in 1985, and 23,370 million kWh therafter when Alumax is operating. By contrast, past and current PNUCC forecasts base their projections for this sector on a meld of firm and nonfirm demand, leading to one recent PNUCC projection of SIC 33 demand for the year 2000 that exceeded contractual entitlements by 39 percent.

Finally, PNUCC and NEPP probably both err in predicting increases in consumption by the petroleum products industry. As petroleum supplies become more scarce and the price of crude increases, most analysts now predict that the petroleum industry will shrink.

In light of these observations, we made three modifications that affect only our "low" scenario for industrial consumption. First, we put a 2.7% ceiling on all "low" growth rates, affecting the 1980-85 growth rates for chemicals, petroleum products, stone/clay/glass, transportation and "other" industries, and the 1985-90 growth rates for stone/clay/glass. Second, we further reduced all positive lumber and paper growth rates to zero, affecting the lumber industry only during the 1980-85 period and both industries during the 1995-2000 period. Finally, we reduced all positive growth rates for petroleum products to zero. We also modified the primary aluminum category, in both the high and low scenarios, to reflect BPA's legal obligation to plan only for the delivery of firm energy.

The analysis of DSI consumption required special treatment. We broke SIC 33 into two categories: primary aluminum (33A) and other primary metal industries (33B). SIC 33B consumption was determined by subtracting the 26,437 million kWh consumed by primary aluminum plants from the 29,025 million kWh consumed by SIC 33 as a whole. These 2,588 million kWh of SIC 33B consumption were used by steel works, rolling mills, and secondary smelting/refining. Firm contractual demand was 2,209 million kWh, which included operation of the Hanna Nickel Smelting Co.[30a] Since part of the Hanna smelter was retired in 1982,[30b] this component of demand must be removed from the base used for forecasting purposes. The result is a reduction of 290 million kWh in current firm energy needs for SIC 33B.[30c]

Tables 4 and 5 summarize the results of these changes on total "base case" electricity consumption for the years 1985, 1990, 1995, 2000, and 2005. In the high demand scenario, firm electricity demand with only minimal conservation in the year 2005 is 57 percent larger than total electricity demand today. In the low demand scenario, electricity needs grow only 5 percent over current levels. As we demonstrate below, a major conservation effort will reduce both these totals substantially.

c. Inventory of Measures

In the subsections that follow, we describe and project the cumulative impact of six general categories of cost-effective industrial conservation measures: good housekeeping, waste heat recovery, improved instrumentation and control, more efficient electric motors, improved lighting, and process innovations. Savings factors in Table 13 below group motor efficiency improvements and grinding under "Mechanical Drive"; waste heat recovery and improved instrumentation and control under "Process Heat"; and process innovations (except grinding) under "Electrolysis." As a conservatism, for purposes of projecting electricity needs, we assume that no industrial conservation measure can ever achieve higher than 80% penetration (measured by reference to the total amount of "base case" electricity consumed by a given end use). Given the profit-consciousness of industrial managers and the assumed availability of adequate incentive payments (see section B.5.d below), we do not doubt that the 80% figure will prove too low in many instances.

TABLE 4

INDUSTRIAL ELECTRICITY CONSUMPTION WITH NO CONSERVATION: THE "HIGH" CASE

(10^6 kWh)

SIC	1980	1985	1990	1995	2000	2005[a]
20	2,145	2,770	3,203	3,469	3,695	3,936
24	4,903	5,728	6,390	6,627	7,024	7,444
26	11,331	15,520	17,619	17,211	17,672	18,145
28	8,221	11,118	13,269	14,008	16,397	19,194
29	968	1,270	1,460	1,375	1,529	1,701
32	716	977	1,198	1,254	1,458	1,695
33A	20,232[b]	21,266	23,370	23,270	23,370	23,370
33B	2,588	2,586	2,985	2,988	3,000	3,012
37	931	1,294	1,532	1,668	1,825	1,996
OTHER	1,703	2,189	2,652	2,999	3,357	3,758
TOTAL	53,738	64,718	73,678	74,969	79,327	84,251

a. Growth rates for the interval 1995-2000 are applied to the interval 2000-2005.

b. Includes only firm deliveries. Nonfirm deliveries of 6,209 million kWh would bring total deliveries to 59,947 million kWh. This total does not match the 59,948 million kWh figure cited earlier because of rounding.

TABLE 5

INDUSTRIAL ELECTRICITY CONSUMPTION WITH NO CONSERVATION: THE "LOW" CASE

(10^6 kWh)

SIC	1980	1985	1990	1995	2000	2005[a]
20	2,145	2,197	2,157	2,153	2,226	2,302
24	4,903	4,903	4,833	4,438	4,438	4,438
26	11,331	11,043	10,760	10,157	10,157	10,157
28	8,221	9,394	9,834	8,751	8,335	7,938
29	968	968	968	829	750	679
32	716	819	936	958	906	857
33A	20,232[b]	21,266	23,370	23,370	23,370	23,370
33B	2,588	2,516	2,824	2,796	2,803	2,810
37	931	1,064	1,148	1,106	1,185	1,270
OTHER	1,703	1,946	2,152	2,258	2,405	2,562
TOTAL	53,738	56,116	58,982	56,816	56,575	56,383

a. Growth rates for the interval 1995-2000 are applied to the interval 2000-2005.

b. Includes only firm deliveries. Nonfirm deliveries of 6,209 million kWh would bring total deliveries to 59,947 million kWh. This total does not match the 59,948 million kWh figure cited earlier because of rounding.

i. Good Housekeeping Measures

So-called "good housekeeping measures" attempt to ensure that existing plant and equipment consistently reach peak performance levels. Examples include such simple tasks as maintaining furnaces properly, plugging leaks in heating and cooling systems, identifying and repairing defective steam traps, and cutting back on nonessential uses of energy. Any one of these might lead to substantial energy savings. In the same category of measures, we include installation of cost-effective insulation both in buildings and around steam pipes, furnaces, ovens, and process tanks. Many companies employing some or all of these measures have been able to cut their energy consumption by 15 percent or more.[31/] For example, during the 1970s, good housekeeping measures were primarily responsible for Tenneco realizing energy savings of 17%, Colgate-Palmolive 18%, Dow Chemical 40%, and Litton Industries 52%.[32/]

In 1978, the Northwest Energy Policy Project estimated that housekeeping measures could cut the region's industrial energy consumption by at least 15%.[33/] Because of its extraordinary electricity-intensity, the aluminum industry probably has already adopted most of the applicable measures, and we allocate no housekeeping savings to that sector. For the remaining industries, we assume a total savings potential of 15%, 80% of which (12%) is realized over the next decade.

To account for measures implemented after 1978, we will also assume that Pacific Northwest industrial end-users had exhausted one-third of this potential by 1980. The Model Plan forecast anticipates half the remaining savings by 1985, and the rest by 1990.

ii. Waste Heat Recovery

"Good housekeeping" measures that allow better retention of heat must be distinguished from waste heat recovery methods, which actively recycle heat that otherwise would serve no useful purpose. Plant efficiency can benefit dramatically from the use of waste heat to provide direct water and space heating and to preheat combustion air, boiler feed water, or production materials. A wide variety of technologies are available to recover waste heat, including heat recuperators, regenerators, heat wheels, passive regenerators, heat pipes, finned tube regenerators, shell and tube regenerators, and waste heat boilers. Not only do these investments have very high rates of return in terms of their energy savings, but also -- as Norman Dean points out -- they "can save money by . . . reducing plant maintenance requirements, improving products, reducing pollution, reducing the size of heating equipment, and reducing labor."[34] The National Bureau of Standards estimates that a typical industrial plant can cut its process heat end-use consumption by 20% through waste heat recovery.[25] We will assume that industries can achieve this 20% reduction by 1990, with half of the savings -- 10% -- emerging by 1985. Applying our penetration limit of 80%, we expect savings of 8% by 1985 and 16% by 1990.

Even these estimates are probably too small, for they give no credit to district heating schemes. David Wade, Chair of the American Society of Heating, Refrigeration and Air Conditioning Engineers' subcommittee on district heating and cooling, contends that district heating could save the U.S. five quads of oil-generated energy by the year 2000.[36] By producing marketable steam, district heating systems make both waste-heat recovery and cogeneration more cost-effective.

iii. Improved Instrumentation and Control Equipment

Computers can help save a large amount of electricity by monitoring consumption, detecting malfunctions before they produce significant losses, adjusting machines or processes to ensure peak efficiencies, managing the overall flow of materials through a plant, and optimizing procurement of energy-efficient equipment. Honeywell estimates that the pulp and paper industry alone could trim $258 million off its annual fuel bill by equipping its process steam boilers with microprocessor control systems that would maintain a fuel-air mix conducive to peak boiler performance.[37] Annual cost reductions per boiler are estimated at between $100,000 and

$2 million. Honeywell's customers have experienced typical energy reductions of 5%. Some customers, however, have been able to save 20 to 25% of their boiler energy using this technology. We shall apply the low savings estimate of 5% to all process heat end-uses. Since the marketing of this technology already is well-established, we shall assume that this 5% savings is available by 1985. Penetration limitations produce an estimate of 4% net savings.

iv. Motor Efficiency Improvements

Electric motors offer tremendous potential for cost-effective savings. In the past 20 years, the efficiency of small electric motors, sized between 1 and 15 horsepower, has actually declined 5.5%.[38] BPA's Conservation Assessment relies extensively on a 1980 U.S. Department of Energy (DOE) survey of motors and pumps to project potential savings in mechanical drive applications of roughly 1-3%.[41] This study, however, has limited applicability, for it addresses only losses "intrinsic" to the motor.[42] As DOE itself acknowledged, the bulk of all motor losses are from "'extrinsic' losses, those due to operation of oversized motors and pumps, but principally due to throttled control of the pump itself."[43] Extrinsic improvements in motor efficiency can result from more carefully sizing motors to their loads, and operating motors from alternating-current synthesizers (ACS) or other controls that automatically optimize the output wave form and the input voltage. D.J. BenDaniel and E.E. David, Jr. of Exxon estimate that, by 1990, ACS alone could economically cut the power requirements of up to half the U.S. motor population by 30%.[44] Mass-production of ACS should bring costs to between $10 and $50 per kilowatt, nearly one hundred times less than the marginal cost of new electricity generating capacity.[45] While BPA incorporated ACS in its projections for the food and stone/clay/glass sectors -- but for none of the other sectors -- it arbitrarily discounted the Exxon projections to 3% savings in the food sector, and 2-4% savings in the stone/clay/glass sector.[46] BPA further ignored other techniques for improving the extrinsic efficiencies of motors such as torque converters, detached flywheels, and central or local hydraulic drives.[47]

We shall use the Exxon projections as a proxy for all motor energy savings, and therefore assume that Northwest industries can save 15% of total mechanical drive consumption by 1990. This estimate is conservative, since it covers only extrinsic savings and makes no additional provision for the intrinsic savings identified by DOE. Also, we are ignoring non-ACS extrinsic savings and intrinsic savings from Wanlass rewinds.[48] In contrast to other reports that estimate total savings from all these techniques at up to 33%, our 15% figure is probably too low.[49] We will further assume that 40% of this savings potential is realized by 1985 and 80% by 1990, leading to mechanical drive savings of 6% by 1985 and 12% during the 1990-2005 period.

v. Lighting

Efficiency improvements could sharply reduce electricity consumption for industrial lighting, which now constitutes 1.12 percent of sectoral electricity consumption.[50/] BPA has determined that three simple and cost-effective energy conservation measures could cut this lighting demand by 59 percent: replacing existing fixtures with high pressure sodium bulbs (35-40% savings); using timers and intensity controls (20% savings); and rescheduling cleaning of buildings to regular hours (15% savings).[51/] We also assume the use of high efficiency ballasts when high pressure sodium bulbs are installed. This brings savings to 45% for bulb replacement. Total savings, derived by subtracting bulb replacement and then applying the sum of other savings, equal 64%. Since there are no significant barriers to these modifications, we will assume that 40% of the region's industries adopt them by 1985 and 80% by 1990 and thereafter. Total savings on lighting energy are thus 26.8% by 1985 and 51.2% by 1990.

vi. Process Innovations

Emerging technologies constitute an additional source of conservation, which is potentially enormous but by definition inscrutable. PNUCC's approach, as we show below, has been to assume that only currently mature technologies should be included in a scenario spanning the next twenty years. While such a philosophy may have been been adopted out of prudence, to us it seems short-sighted. Many manufacturing processes being implemented today were unthinkable in 1961. Therefore, process improvements now under development can serve as a rough indicator of what we can anticipate in ten to twenty years, for even if technologies now in their infancy prove unsuccessful, other, unforseen efficiency improvements will compensate for the loss. There is no reason to presume, as PNUCC apparently does, that technological progress will cease during the next quarter of a century.

Below, we discuss three important areas where process improvements can be expected: aluminum smelting, chlor-alkali production, and industrial grinding. This discussion is of course incomplete, for had we the resources to analyze smaller end-uses, we could probably identify likely process improvements elsewhere. Nevertheless, these three areas alone suggest -- and understate -- the enormous savings that will attend future process efficiency improvements in the Pacific Northwest's industrial sector.

(a.) Aluminum Smelting

Since aluminum electrolysis absorbs nearly forty percent of the electricity consumed by the region's industries, it is a prime target for technological innovation. Of the primary aluminum plants in the region, eight were built before 1959, when cheap and abundant hydropower deflected attention from efficiency concerns. The SRC data base assumed that the typical aluminum plant consumed 9.1 kWh per pound, with the plant's reduction cells accounting for 8.1 kWh per pound.52/ Some of the newer plants, however, are using electricity much more sparingly. Intalco's Ferndale, Washington plant, for example, built in 1966, has operated at about 6.3 kWh per pound.53/ The average electrolytic consumption in the industry is now 7.75 kWh per pound.53a/

The number of aluminum producers that either have begun or completed modernization since 1977 underscores the feasibility of rehabiliting the entire regional aluminum industry. In the past few years, Martin-Marietta has modified its two Hall-Heroult plants with the Sumitomo process, reducing electricity use to 7 kWh per pound.54/ Anaconda also recently finished a three-year modernization with Sumitomo technology that has cut its electricity demand by 15 percent.55/ In February of 1981, Kaiser announced a six hundred million dollar plan to convert its two plants to pre-baked anodes over the next seven to ten years; the firm expects its electricity use to drop to 6.0-6.5 kWh per pound.[56] In August of the same year, the proposed Alumax plant assumed contractual obligations to operate at 6.1 kWh per pound or less.[57] That such improvements have already begun suggests that the capital investments necessary to improve plant efficiency are cost-effective now. Existing plants of relatively high efficiency demonstrate that industry averages of 7.5 kWh per pound by 1985 and 7.0 kWh per pound by 1990 are certainly feasible.

New aluminum reduction processes can reduce electricity needs even further. One option is to retrofit existing Hall-Heroult cells with titanium diboride (TiB_2) cathodes, which could decrease electricity consumption to between 5.1 and 6.1 kWh per pound.[58] The BPA Conservation Assessment minimizes the importance of this process, contending that "[t]here are numerous problems to be solved before this material [sic] will be available for use on a commercial scale by the industry."[59] However, a recent Department of Energy report observes: "At least two companies, Kawecki Berylco Industries, Inc. and PPG Industries, believe that past difficulties with titanium diboride have now been overcome, and that they could demonstrate 3-4 years cathode life and the advantage of titanium diboride to the primary aluminum companies."[60] As BPA recognizes, this retrofitting technology will be a "much less costly alternative than replacement of existing plants with the new alternative or even advanced Hall process technology."[61]

Another intriguing technology is the Alcoa chloride reduction process, which could reduce the electricity consumption of an aluminum plant to between 2.9 and 5.0 kWh per pound.[62] Since 1973, Alcoa has been using this process in a demonstration plant in Palestine, Texas. BPA finds this technology irrelevant to existing Pacific Northwest aluminum plants, both because "the process is in the research-demonstration plant stage of testing and will probably require several more years before testing can confirm its commercial potential,"[63] and because "this process is not compatible with retrofitting of existing plants."[64] The first of these assertions, while correct, is deprived of some of its force by encouraging preliminary reports on the performance of the demonstration plant.[65]

Moreover, even if the Pacific Northwest builds no additional aluminum capacity, complete rebuilding of existing capacity -- as Kaiser is doing now -- may nevertheless make sound business sense, especially if the cost of electricity continues to rise. The Department of Commerce has projected that, by 1991, electric power costs will constitute 25% of the total costs of the aluminum produced in a new plant using an efficient Hall-Heroult design, while fixed costs for depreciation and pollution control will constitute less than 8%.[66]

In theory, based on the Department of Commerce figures, an aluminum firm could bulldoze its modernized Hall-Heroult plant, build an entirely new plant using the Alcoa process or an equally efficient alternative, and recoup all of its annual capital losses in electricity savings. New annual expenditures of $118.50 per tonne for plant and pollution control[67/] would be lowered by a 25% federal tax credit[68/] (10% investment credit plus 15% conservation credit) to $88.88. More than 75% of this cost would be offset by electricity savings, even assuming (as the Department of Commerce did) that the DSIs would reap savings based on average (as opposed to marginal) electricity costs. Under the Regional Power Act, however, DSIs are entitled to billing credits that will increase the value of consumption reductions to levels reflecting the region's marginal costs. See section B.5.d. below. Rendering retooling still more attractive are the tax savings that would result from writing off "junked" plants.

While there are too many uncertainties surrounding the exact fixed and variable costs of high-efficiency processes now under development to project confidently that every primary metals industry in the region could profit by rebuilding existing plants, irrespective of previous investments in modernizing, we can nevertheless anticipate that some plants will make the switchover. For example, the two operating Alcoa plants in the Northwest, which now operate at 8 kWh per pound, are prime candidates for their firm's best technology. On this basis, we assume that the industry as a whole will consume 6.5 kWh per pound by 1995 and 6.0 kWh per pound by 2000.

How these efficiency improvements translate into reductions in electricity demand will depend on whether the DSIs use their savings to expand production. This, in turn, will depend on national demand for aluminum and the cost-effectiveness of building new capacity in the Pacific Northwest. Rather than project these future outcomes, we sketch the extreme possibilities for our low and high scenarios. In our high scenario, we assume that every saved kilowatt hour yields more production, so that the industry always consumes up to its contractual entitlement. Thus, electricity consumption in SIC 33 grows at 1% per year until 1985 and then grows again when Alumax comes on line in 1987. In our low demand scenario, we assume that the 1980 level of aluminum production (based on both firm and nonfirm energy consumption), boosted to include the firm Alumax level of production, remains constant.

We must emphasize that our projections for potential savings in the aluminum sector are probably too low. With Pechiney's Auzat plant in Europe already achieving below 5.9 kWh per pound[71/] and the Alcoa or comparable processes capable of exceeding our 5.0 kWh per pound goal, the region may actually be able to do much better. An additional conservatism is our failure to incorporate any credit for recycling, which could save 95 percent of the energy needed to produce new aluminum from bauxite ore.[72] According to the aluminum industry, recycling is a process that can be repeated indefinitely.[73] The dramatic increase in recycling in the last decade[74] suggests that the roughly 70% of all aluminum not recycled[75] could be recycled cost-effectively in the future, further reducing national demand for primary aluminum smelting.

(b.) Chlorine and Alkali Processing

Electrolysis in the chlor-alkali industry accounts for roughly two percent of the Northwest's industrial electricity demand.[76] New processes can significantly improve the current 1.53 kWh per pound average efficiency for the region's five plants.[77] Various "membrane" cell technologies can replace the existing "diaphragm" and "mercury" cell technologies and reduce electricity consumption to between 1.11 and 1.40 kWh per pound.[78] At the low end of this range are membrane-type chlorine cells with oxygen electrodes, which a recent Argonne National Laboratory (ANL) report found to be just slightly more expensive than the diaphragm process.[79] The report concluded: "Membrane cells apparently have become economically competitive under certain conditions, and a number of plants are expected to be built using this new type of cell."[80]

BPA's belief that membrane technologies are "not likely to be practical enough for on-line use in the [Northwest] by 1990" is based on an outdated ANL report.[81] And even the now up-to-date ANL report is almost certainly too conservative, since its assumption that electricity will cost an unrealistically low 1 cent per kWh understates potential economic benefits to conservers.[82]

Thus, while implementing the membrane technologies will not be cheap, not implementing them will almost certainly be more costly. As BPA's analysis shows, electricity charges constitute between 50 and 67 percent of total product cost.[83] Implementation of the best membrane technology could thus shave between 14 and 18 percent off total costs -- energy savings that probably exceed the fixed costs of a new plant. Thus, as in the case of aluminum smelting, the alkali-chloride industry could simply build new plants, write off the old plants, and realize substantial net savings.

For our low demand scenario, we will assume that 40% of the chlor-alkali industry can implement membrane technologies by 1985 and 80% by 1990. For our high demand scenario, we will assume that penetration takes longer, with 40% of the industry using membranes by 1990, 60% by 1995, and 80% by the year 2000. Since the chlor-alkali industry consumes 81% of SIC 28 electrolytic demand, installing the best membranes in half of the industry would reduce SIC 28 electrolytic demand by 8.9%;

implementing them in the entire industry would reduce electrolytic demand by 17.8%.

(c.) Grinding

Industrial grinding presents another opportunity for large electricity savings; in 1977, grinding accounted for 21.64 percent of the region's mechanical drive end-use electricity consumption.[84] A National Research Council committee recently reported that modifying current plant, equipment, and processes with technology now available could cut grinding power requirements by 18.8 percent within five years.[85] The contemplated improvements include sizing machines properly, upgrading the performance of classifiers, adding certain lubricants, and installing more sophisticated control machinery. Other long-term improvements within five to ten years could ultimately reduce grinding consumption to 34.4 percent of its current level.[86] For example, fracturing cement clinker before tumbling it in a mill might cut electricity needs by 50%.[87] On the basis of this report, we assume that grinding consumption can be cut 18.8 percent by 1985, and an additional 46.8 percent by 1990. With a penetration ceiling of 80%, these percentage savings are reduced to 15% by 1985 and 52.5% by 1990. Table 6 shows how we derived savings factors for each SIC sector.

TABLE 6

Electricity Conservation for Grinding in Each Sector

		1985		1990-2005	
SIC	Percentage of Grinding Consumption to Total Mechanical Drive Consumption in 1977(a)	Grinding Energy Savings	Percentage of Savings in Mechanical Drive Energy(b)	Grinding Energy Savings	Percentage of Savings in Mechanical Drive Energy(c)
20	.071	.15	.011	.525	.037
24	.083	.15	.012	.525	.044
26	.115	.15	.017	.525	.060
28	.506	.15	.076	.525	.266
29	.110	.15	.017	.525	.058
32	.536	.15	.080	.525	.281
33	.492	.15	.074	.525	.258
37	.036	.15	.005	.525	.019

(a) Figures derived by dividing the SRC estimate "crushing/grinding/pressing" for electricity consumption by the "mechanical drive" estimate in Table 4 for each SIC sector. Synergic Resources Corporation, note 2, at I-14 (Vol. I).

(b) Column 1 times Column 2.

(c) Column 1 times Column 4.

vii. Cogeneration

Cogeneration is the sequential production of electricity and useful process heat for industrial (and other) applications. Its overall energy production efficiency is significantly higher than that of electricity and heat produced separately. While it is not technically a conservation measure, cogeneration has priority over new coal and nuclear plants under the Regional Act, and it will allow many Northwest industries both to reduce their needs for central station electricity and to provide power for use in other sectors.

Cogeneration systems offer numerous economic and environmental advantages, compared with new power plants. In addition to their higher efficiency, they are built in size ranges well below the scale of conventional power plants, and have shorter lead-times. Thus, cogeneration units offer utilities more flexibility in responding to uncertain demand trends.

The technology for cogeneration has existed since the beginning of this century. In fact, in the Pacific Northwest, several mill towns first obtained electricity as surplus from cogeneration by lumber mills. Currently, about 425 MW of cogeneration capacity is installed within the region, although not all of this is being operated.

Cogeneration can occur in two different cycles. In the topping cycle, fuel is burned to raise steam to produce electricity; the rejected waste heat is then used to supply industrial thermal process requirements. In a bottoming cycle, fuel is burned first to produce high-temperature heat for industrial processes, and the remaining waste heat is then used to generate electricity.

Several types of fuel can be used in cogeneration systems. Oil and natural gas are obvious candidates, but their availability is subject to supply limitations and rising prices. Fortunately, wood waste is another potential fuel source that, within the Northwest, is both widely available and relatively inexpensive. As section B.5.e below explains, the Model Plan's projected cogeneration resources generally will rely on wood waste as their primary fuel source.

A discussion of the untapped potential for cost-effective cogeneration is reserved for the forecasting analysis that concludes this section. We turn now to a discussion of the regulatory and incentive programs that are needed to realize these and other opportunities for efficiency improvements in the industrial sector.

d. Regulatory and Incentive Programs

As we pointed out earlier, industrial conservation efforts will continue to fall well short of cost-effectiveness limits as long as plant owners insist on paybacks of two years or less for efficiency investments. Lack of information is also a significant problem, particularly for owners of smaller plants. Finally, potential cogenerators are understandably discouraged by the unwillingness of most Northwest utilities to pay more than the BPA wholesale rate -- generally less than two cents per kilowatt-hour -- for cogeneration output.

The Regional Act provides numerous options for overcoming these barriers. The "payback gap" between industrial conservation investments and utility-financed power plants can be closed by funnelling BPA capital into industrial efficiency improvements. We recommend a program modeled on that proposed above for the commercial sector (section III.B.3.b), in which BPA pays for savings in excess of a "rapid-payback threshold" identified by a highly trained auditor. A corps of specialized industrial auditors is a prerequisite; training and deployment of such individuals should be urgent regional priorities. Auditors should be alert for cogeneration opportunities as well as potential efficiency improvements. The program should be structured like its commercial sector counterpart, with one significant addition: special safeguards must be incorporated to ensure that the region is paying for improved efficiency, not reduced production. When the business cycle turns down, annual BPA payments to qualifying plants should reflect only electricity savings that would have resulted if pre-retrofit production levels had been maintained.*

Potential cogenerators need a different kind of assistance. Their current problems in obtaining guarantees of adequate payment for power production may seem surprising, since federal regulations require utilities to purchase cogenerated power at rates equivalent to the cost of "electric energy or capacity or both which, but for the purchase . . ., such utility would generate itself or purchase from another source."**

However, many Northwest utilities are arguing that BPA wholesale rates set a price ceiling for their cogeneration purchases. BPA rate policies, as explained in section VII below, keep wholesale prices artificially low -- currently less than two cents per kilowatt-hour for most utilities. The Regional Act authorizes BPA to take several steps to eliminate this problem, including (1) wholesale rate reform (see section VII below); (2) active "prospecting" for cogeneration opportunities throughout the region; (3) advance guarantees of payment for anticipated output from cost-effective new cogeneration plants, ensuring the availability of favorable financing; and (4) commitments to reimburse fully all utility costs associated with the purchase of power from cost-effective cogeneration facilities.

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*This is not to dispute the merits of a separate program allowing BPA to "buy back" kilowatt-hours from industrial plants during times of threatened energy insufficiency; see sections IV and VII below.

**These regulations appear at 18 C.F.R. §§ 292.101(b)(6) & 292.304. They were issued under authority granted by the Public Utility Regulatory Policies Act.

The last of these options involves a device called "billing credits," which are available to DSIs as well as utilities. Billing credits reward recipients for conservation, cogeneration, and other investments in new resources that are made independently of BPA programs. Their entitlement to billing credits leaves DSIs with at least some incentive to launch efficiency improvements in advance of the region-wide industrial incentive program described at the outset of this section. Unfortunately, as explained in section VII below, the billing credits program now enjoys only limited credibility. BPA can provide an additional spur to DSI efficiency by adopting new guidelines for allocating power among the region's ten aluminum plants during curtailment periods. As noted earlier, current policy makes 25% of each DSI's contractual entitlement a regional "reserve" subject to interruption; as matters now stand, shortages are shared equally. We recommend that BPA change the rules, and allocate electricity during times of DSI curtailment to maximize the production of aluminum. Interruptions would follow a sequential schedule based on rated plant efficiencies, measured in terms of energy consumed per unit of output. Resumption of service would proceed in accordance with the same considerations, with more efficient plants taking priority. Of course, should this and other industrial incentive programs have the desired effect, the likelihood of _any_ DSI curtailments will be reduced substantially.

e. Forecast of Electricity Needs for the Industrial Sector

i. End Use Needs Before Cogeneration

To project post-conservation electricity needs of the entire industrial sector, we broke our calculations into three stages: (1) estimating end-use needs with minimal conservation; (2) estimating end-use needs in the aftermath of all conservation except housekeeping; and (3) reducing these needs still further to account for the impact of housekeeping measures.

To estimate end-use demands without conservation, we assumed that the relative consumption rates of each SIC sector in 1977, as shown in Table 7, would remain constant over time. For example, since mechanical drive end-uses consumed roughly 85.7% of all electricity in the food industry (SIC 20) in 1977, we assumed that mechanical drive would continue to account for that same percentage of demand over the 1985-2005 interval. We applied these end-use proportions in Table 7 to our total demand estimates in Table 4 and Table 5 to construct an end-use matrix for 1985, 1995, 2000, and 2005, as shown in Tables 8-12, respectively.

We then calculated savings factors, as shown in Table 13, based on our discussion of the availability of different conservation measures. By applying these savings factors to the end-use demands in Tables 8-12, we estimated electricity needs after conservation in Tables 14-18.

The primary aluminum industry (SIC 33A) was treated somewhat differently because of considerations unique to these

DSIs. We first calculated how conservation measures would rearrange the relative needs of each end-use, as shown below:

	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
1985	.10052	.03288	.86522	.00015	.00123
1990	.08249	.03284	.88324	.00009	.00134
1995	.08804	.03505	.87538	.00009	.00143
2000-05	.09440	.03758	.86638	.00011	.00154

In aggregate, conservation measures could lower the 1980 aluminum electricity demand roughly 5% by 1985, 13% by 1990, 18% by 1995, and 24% by 2000. For the high scenario, since we assumed that producers would translate all efficiency gains into increased production, total consumption remains constant, though the relative needs of each end-use change. For the low scenario, we assumed that all efficiency gains would reduce electricity consumption. But reduced electricity demand will not affect BPA's planning until the savings exceed nonfirm consumption. Recall that in 1980, aluminum plants consumed 20,232 million kWh firm plus 6,205 million kWh nonfirm. If we hold 1980 aluminum production constant, then the sector will continue to consume 26,437 million kWh, even though BPA is only obligated to supply the 20,232 million kWh firm. Actually, as discussed earlier, BPA's contractual obligation to the aluminum industry will increase to 21,266 million kWh by 1985 because of technological allowances and to 23,370 million kWh by 1987 because of Alumax. In 1985, with a 1980 level of production, the aluminum industry would consume 27,471 million kWh (21,266 firm and 6,205 nonfirm). With 5% savings, the actual consumption of roughly 26,000 million kWh still exceeds contract demand. Hence, BPA must still plan for the full delivery of 21,266 million kWh firm. In 1990, the aluminum industry with minimal conservation would consume 29,575 million kWh (23,370 firm and 6,205 nonfirm). Even with 13% savings, consumption again would not dip below BPA's 23,370 million kWh obligation. Not until the year 2000 does actual consumption slightly undercut BPA's firm obligation. Thus, the high and low demand scenarios in SIC 33A look almost identical.

Table 19 makes the final reductions for good housekeeping throughout the industrial sector -- 4% savings by 1985 and 8% savings by 1990, excluding SIC 33A (which, as explained above, is not assumed to realize any housekeeping savings). In the high demand scenario, consumption rises from 59,948 million kWh in 1980 to 68,924 million kWh in 2005 -- an average annual growth rate of 0.56%. In the low demand scenario, consumption declines to 47,231 million kWh by 2005 -- an average annual decline of .95%. However, as the next subsection explains, one additional adjustment to these totals, reflecting cogeneration contributions at industrial sites, remains to be made.

TABLE 7

RELATIVE SIZE OF EACH END-USE CATEGORY IN EACH SIC SECTOR IN 1977[a]

SIC SECTOR	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	.85721	.06756	-	.05319	.02204
24	.96520	-	-	.03480	-
26	.49710	.50290	-	-	-
28	.15116	.66792	.17579	-	.00513
29	1.00000	-	-	-	-
32	.61550	.38451	-	-	-
33A	.11018	.03552	.85294	.00019	.00117
33B	.16434	.81764	.00378	-	.01425
37	.24834	.17550	.07616	.38852	.11148

a. Derived from Table 1, except for SIC 33, which was derived from Synergic Resources Corporation, note 2 above, at III-90 (Volume I).

TABLE 8

1985 Electricity End-Use Matrix for Pacific Northwest Industry With Minimal Conservation

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption (a)	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	2,770	2,374	187	-	147	61
	(2,197)	(1,883)	(148)		(117)	(48)
24	5,728	5,529	-	-	199	-
	(4,903)	(4,732)			(171)	
26	15,520	7,715	7,805	-	-	-
	(11,043)	(5,489)	(5,554)			
28	11,118	1,681	7,426	1,954	-	57
	(9,394)	(1,420)	(6,274)	(1,651)		(48)
29	1,270	1,270	-	-	-	-
	(968)	(968)				
32	977	601	376	-	-	-
	(819)	(504)	(315)			
33A	21,266	2,343	755	18,139	4	25
	(21,266)	(2,343)	(755)	(18,139)	(4)	(25)
33B	2,586	425	2,114	10	-	37
	(2,516)	(413)	(2,057)	(10)		(36)
37	1,294	321	227	99	503	144
	(1,064)	(264)	(187)	(81)	(413)	(119)
SUB-TOTAL	62,529	22,259	18,833	20,202	853	324
	(54,170)	(18,016)	(15,290)	(19,881)	(705)	(267)
OTHER	2,189					
	(1,946)					
GRAND TOTAL	64,718					
	(56,116)					

a. Numbers may not add exactly due to rounding.

TABLE 9

1990 Electricity End-Use Matrix for Pacific Northwest Industry With Minimal Conservation

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption (a)	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,203 (2,157)	2,746 (1,849)	216 (146)	-	170 (115)	71 (48)
24	6,390 (4,833)	6,168 (4,665)	-	-	222 (168)	-
26	17,619 (10,760)	8,758 (5,349)	8,861 (5,411)	-	-	-
28	13,269 (9,834)	2,006 (1,487)	8,863 (6,568)	2,333 (1,729)	-	68 (50)
29	1,460 (968)	1,460 (968)	-	-	-	-
32	1,198 (936)	737 (576)	461 (360)	-	-	-
33A	23,370 (23,370	2,575 (2,575)	830 (830)	19,933 (19,933)	4 (4)	27 (27)
33B	2,985 (2,824	491 (464)	2,441 (2,309)	11 (11)	- -	43 (40)
37	1,532 (1,148)	380 (285)	269 (201)	117 (87)	595 (446)	171 (128)
SUB-TOTAL	71,026 (56,830)	25,321 (18,218)	21,941 (15,825)	22,394 (21,760)	991 (733)	380 (293)
OTHER	2,652 (2,152)					
GRAND TOTAL	73,678 (58,982)					

a. Numbers may not add exactly due to rounding.

TABLE 10

1995 Electricity End-Use Matrix for
Pacific Northwest Industry With Minimal Conservation
(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption(a)	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,469	2,974	234	-	185	76
	(2,153)	(1,846)	(145)		(115)	(47)
24	6,627	6,396	-	-	231	-
	(4,438)	(4,284)			(154)	
26	17,211	8,556	8,655	-	-	-
	(10,157)	(5,049)	(5,108)			
28	14,008	2,117	9,356	2,462	-	72
	(8,751)	(1,323)	(5,845)	(1,538)		(45)
29	1,375	1,375	-	-	-	-
	(829)	(829)				
32	1,254	772	482	-	-	-
	(958)	(590)	(368)			
33A	23,370	2,575	830	19,933	4	27
	(23,370)	(2,575)	(830)	(19,933)	(4)	(27)
33B	2,988	491	2,443	11	-	43
	(2,796)	(459)	(2,286)	(11)	-	(40)
37	1,668	414	293	127	648	186
	(1,106)	(275)	(194)	(84)	(430)	(123)
SUB-TOTAL	71,952	25,670	22,293	22,533	1,068	404
	(54,558)	(17,230)	(14,776)	(21,566)	(703)	(282)
OTHER	2,999					
	(2,258)					
GRAND TOTAL	74,951					
	(56,816)					

a. Numbers may not add exactly due to rounding.

TABLE 11

2000 Electricity End-Use Matrix for
Pacific Northwest Industry With Minimal Conservation
(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption (a)	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,695 (2,226)	3,167 (1,908)	250 (150)	-	197 (118)	81 (49)
24	7,024 (4,438)	6,780 (4,284)	-	-	244 (154)	-
26	17,672 (10,157)	8,785 (5,049)	8,887 (5,108)	-	-	-
28	16,397 (8,335)	2,479 (1,260)	10,952 (5,567)	2,882 (1,465)	-	84 (43)
29	1,529 (750)	1,529 (750)	-	-	-	-
32	1,458 (906)	897 (558)	561 (348)	-	-	-
33A	23,370 (23,370)	2,575 (2,575)	830 (830)	19,933 (19,933)	4 (4)	27 (27)
33B	3,000 (2,803)	493 (461)	2,453 (2,292)	11 (11)	- -	43 (40)
37	1,825 (1,185)	453 (294)	320 (208)	139 (90)	709 (460)	203 (132)
SUB-TOTAL	75,970 (54,170)	27,158 (17,139)	24,253 (14,503)	22,965 (21,499)	1,154 (736)	438 (291)
OTHER	3,357 (2,405)					
GRAND TOTAL	79,327 (56,575)					

a. Numbers may not add exactly due to rounding.

TABLE 12

2005 Electricity End-Use Matrix for Pacific Northwest Industry With Minimal Conservation

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption (a)	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,936	3,374	266	-	209	87
	(2,302)	(1,973)	(156)		(122)	(51)
24	7,444	7,185	-	-	259	-
	(4,438)	(4,284)			(154)	
26	18,145	9,020	9,125	-	-	-
	(10,157)	(5,049)	(5,108)			
28	19,194	2,901	12,820	3,374	-	98
	(7,938)	(1,200)	(5,302)	(1,395)		(41)
29	1,701	1,701	-	-	-	-
	(679)	(679)				
32	1,695	1,043	652	-	-	-
	(857)	(527)	(330)			
33A	23,370	2,575	830	19,933	4	27
	(23,370)	(2,575)	(830)	(19,933)	(4)	(27)
33B	3,012	495	2,463	11	-	43
	(2,810)	(462)	(2,298)	(11)	-	(40)
37	1,996	496	350	152	775	223
	(1,270)	(315)	(223)	(97)	(493)	(142)
SUB-TOTAL	80,523	28,790	26,506	23,470	1,247	478
	(53,821)	(17,064)	(14,247)	(21,436)	(773)	(301)
OTHER	3,758					
	(2,562)					
GRAND TOTAL	84,281					
	(56,383)					

a. Numbers may not add exactly due to rounding.

TABLE 13

SAVINGS FACTORS(a)

	Mechanical Drive		Process Heat		Electrolysis (b)				Lighting	
SIC	1985	1990-2005	1985	1990-2005	1985	1990	1995	2000-2005	1985	1990-2005
20	.9297	.8474	.8832	.8064					.740	.488
24	.9287	.8413	.8832	.8064					.740	.488
26	.9240	.8272	.8832	.8064					.740	.488
28	.8686	.6459	.8832	.8064	(.911)	.911 (.822)	.864 (.822)	.822 (.822)	.740	.488
29	.9240	.8290	.8832	.8064					.740	.488
32	.8648	.6372	.8832	.8064					.740	.488
33B(c)	.8704	.6530	.8832	.8064					.740	.488
37	.9353	.8633	.8832	.8064					.740	.488

a. Developed as explained in text.

b. Figures in parentheses apply only to low demand scenario.

c. Treatment of 33A (primary aluminum) is explained in text.

TABLE 14

1985 Electricity End-Use Matrix for Pacific Northwest Industry With Model Plan Conservation*

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	2,542	2,207	165	-	109	61
	(2,017)	(1,751)	(131)		(87)	(48)
24	5,281	5,134	-	-	147	-
	(4,522)	(4,395)			(127)	
26	14,022	7,129	6,893	-	-	-
	(9,977)	(5,072)	(4,905)			
28	10,030	1,460	6,559	1,954	-	57
	(8,326)	(1,233)	(5,541)	(1,504)		(48)
29	1,173	1,173	-	-	-	-
	(894)	(894)				
32	852	520	332	-	-	-
	(714)	(436)	(278)			
33A	21,266	2,138	669	18,400	3	26
	(21,266)	(2,138)	(669)	(18,400)	(3)	(26)
33B	2,273	370	1,867	10	-	26
	(2,212)	(359)	(1,817)	(10)	-	(26)
37	1,115	300	200	99	372	144
	(918)	(247)	(165)	(81)	(306)	(119)
SUB-TOTAL	58,554	20,431	16,715	20,463	631	314
	(50,845)	(16,525)	13,536	(19,995)	(522)	(267)
OTHER	2,189					
	(1,946)					
GRAND TOTAL	60,743					
	(52,791)					

*Except housekeeping.

TABLE 15

1990 Electricity End-Use Matrix for Pacific Northwest Industry With Model Plan Conservation*

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	2,655 (1,789)	2,327 (1,567)	174 (118)	-	83 (56)	71 (48)
24	5,297 (4,007)	5,189 (3,925)	-	-	108 (82)	-
26	14,391 (8,788)	7,245 (4,425)	7,146 (4,363)	-	-	-
28	10,636 (7,727)	1,296 (960)	7,147 (5,296)	2,125 (1,421)	-	68 (50)
29	1,210 (802)	1,210 (802)	-	-	-	-
32	842 (657)	470 (367)	372 (290)	-	-	-
33A	23,370 (23,370)	1,928 (1,928)	767 (767)	20,641 (20,641)	2 (2)	32 (32)
33B	2,318 (2,193)	321 (303)	1,968 (1,862)	11 (11)	- -	18 (17)
37	1,123 (841)	328 (246)	217 (162)	117 (87)	290 (218)	171 (128)
SUB-TOTAL	61,842 (50,674)	20,314 (14,523)	17,791 12,858	22,894 (22,160)	483 (358)	360 (275)
OTHER	2,652 (2,152)					
GRAND TOTAL	64,494 (52,826)					

*Except housekeeping.

TABLE 16

1995 Electricity End-Use Matrix for Pacific Northwest Industry With Model Plan Conservation*

(10^6 kWh)

(High Demand Scenario Without Parentheses; Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	2,875	2,520	189	-	90	76
	(1,784)	(1,564)	(117)		(56)	(47)
24	5,494	5,381	-	-	113	-
	(3,689)	(3,604)			(75)	
26	14,057	7,078	6,979	-	-	-
	(8,296)	(4,177)	(4,119)			
28	11,119	1,367	7,545	2,135	-	72
	(6,877)	(855)	(4,713)	(1,264)		(45)
29	1,140	1,140	-	-	-	-
	(687)	(687)				
32	881	492	389	-	-	-
	(673)	(376)	(297)			
33A	23,370	2,057	819	20,458	2	34
	(23,370)	(2,057)	(819)	(20,458)	(2)	(34)
33B	2,320	321	1,970	11	-	18
	(2,171)	(300)	(1,843)	(11)	-	(17)
37	1,222	357	226	127	316	186
	(810)	(237)	(156)	(84)	(210)	(123)
SUB-TOTAL	62,478	20,713	18,127	22,731	521	386
	(48,347)	(13,857)	(12,064)	(21,817)	(343)	(266)
OTHER	2,999					
	(2,258)					
GRAND TOTAL	65,477					
	(50,605)					

*Except housekeeping.

TABLE 17

2000 Electricity End-Use Matrix for Pacific Northwest Industry With Model Plan Conservation*

(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,063 (1,845)	2,684 (1,617)	202 (121)	-	96 (58)	81 (49)
24	5,823 (3,679)	5,704 (3,604)	-	-	119 (75)	-
26	14,433 (8,296)	7,267 (4,177)	7,166 (4,119)	-	-	-
28	12,886 (6,550)	1,601 (814)	8,832 (4,489)	2,369 (1,204)	-	84 (43)
29	1,268 (622)	1,268 (622)	-	-	-	-
32	1,024 (637)	572 (356)	452 (281)	-	-	-
33A	23,369 (22,477)	2,206 (2,122)	878 (845)	20,247 (19,473)	2 (2)	36 (35)
33B	2,329 (2,177)	322 (301)	1,978 (1,848)	11 (11)	- -	18 (17)
37	1,337 (868)	391 (254)	258 (168)	139 (90)	346 (224)	203 (132)
SUB-TOTAL	65,532 (47,451)	22,015 (13,867)	19,766 (11,870)	22,766 (20,778)	563 (359)	422 (276)
OTHER	3,357 (2,405)					
GRAND TOTAL	68,889 (49,856)					

*Except housekeeping.

TABLE 18

2005 Electricity End-Use Matrix for
Pacific Northwest Industry With Model Plan Conservation*
(10^6 kWh)

(High Demand Scenario Without Parentheses;
Low Demand Scenario With Parentheses)

SIC SECTOR	Total Consumption	Mechanical Drive	Process Heat	Electrolysis	Lighting	Other
20	3,263 (1,859)	2,859 (1,622)	215 (126)	-	102 (60)	87 (51)
24	6,171 (3,679)	6,045 (3,604)	-	-	126 (75)	-
26	14,819 (8,296)	7,461 (4,177)	7,358 (4,119)	-	-	-
28	15,083 (6,238)	1,874 (775)	10,338 (4,276)	2,773 (1,146)	-	98 (41)
29	1,410 (563)	1,410 (563)	-	-	-	-
32	1,191 (602)	665 (336)	526 (266)	-	-	-
33A	23,369 (22,477)	2,206 (2,122)	878 (845)	20,247 (19,473)	2 (2)	36 (35)
33B	2,338 (2,183)	323 (302)	1,986 (1,853)	11 (11)	- -	18 (17)
37	1,463 (925)	428 (272)	282 (180)	152 (90)	378 (241)	223 (142)
SUB-TOTAL	69,127 (46,822)	23,267 (13,773)	21,565 (11,665)	23,183 (20,720)	608 (378)	462 (286)
OTHER	3,758 (2,562)					
GRAND TOTAL	72,885 (49,384)					

*Except housekeeping.

TABLE 19

TOTAL REGIONAL INDUSTRIAL DEMAND AFTER GOOD HOUSEKEEPING
(10^6 kWh)

High Demand Scenario

	Before Housekeeping	After Housekeeping
1980	59,948	-
1985	60,743	59,164
1990	64,494	61,204
1995	65,477	62,108
2000	68,889	65,247
2005	72,885	68,924

Low Demand Scenario

	Before Housekeeping	After Housekeeping
1980	59,948	-
1985	52,791	51,530
1990	52,826	50,470
1995	50,605	48,426
2000	49,856	47,666
2005	49,384	47,231

ii. Cogeneration Potential

Cogeneration could displace significant amounts of regional electricity demand by the year 2000. In 1980, Rocket Research Corporation (RRC) identified 1,645 MW of cogeneration potential within the region, 424 MW of which already has been installed.[88/] Not only is this resource cost-effective, but its very existence implies a large additional cogeneration potential arising from future industrial growth.

In its Conservation Assessment, BPA relied on the RRC report but drew questionable conclusions from the RRC data. Most significantly, BPA reduced RRC's "technical potential" by an arbitrary factor of 50% to project "potential savings." BPA claimed that this reduction reflected "RRC judgment that only 50-75% percent of this additional potential can be implemented."[89/] However, BPA's reliance on its contractor's "judgment" here is ill-advised, because the RRC projection was based on the now-obsolete assumption that the price offered for cogenerated power will be artificially low. While the first volume of the RRC report speculated that "[t]he practical limit of achievement may be in the order of 75%,"[90/] the authors observed prophetically that "the economic pendulum could swing dramatically"[91/] and cautioned: "[a] better understanding will be achieved after the economic analysis is complete."[92/] The later phases of the RRC report found that all of the "technical potential" represented electricity costing no more than 5.9 cents per kWh under public ownership in inflated 1983 dollars.[93/] RRC went on to make the patently incorrect prediction that the marginal cost of new central station thermal plants would be 3.5 to 4.5 cents per kWh in 1983 dollars.[94/] It was that assumption which led both BPA and RRC to pronounce half of the proposed "technical potential" uneconomic. However, as noted earlier in the Model Plan, new thermal power supplies will cost more than 7 cents per kWh in 1983 dollars, excluding environmental and transmission-related costs.[95/] Moreover, the Regional Act prevents BPA from buying such power until it has exhausted all less expensive cogeneration. Idaho utilities already have begun buying electricity from cogenerators at 6.7 cents per kWh.[96/] Thus, not only is the entire RRC-identified technical potential cost-effective, but it also probably understates the true technical potential that would have emerged had more realistic economic criteria been used. As RRC conceded, its "cogeneration levels as calculated in general tend toward the conservative side...."[97/]

The pessimistic analysis of cogeneration in BPA's Conservation Assessment contains numerous other errors. First, BPA fails to acknowledge the cogeneration potential inherent in gas turbines and condensing cycles, acting as if Phases III and IV of the RRC report had never been written.[98/] Second, BPA arbitrarily assumes that half the cogeneration potential it deems potentially available will not be installed until the year 2000,[99] except in the paper and pulp industry, where it asserts that two-thirds of the potential will remain untapped until 2000.[100] BPA claims that it is merely allowing "sufficient lead time required for delivery, construction, installation, and mandatory pollution rating ..."[101] RRC, however, found that these factors would require only a five year lead time "once the decision is made to implement."[102] Third, BPA reduces the capacity factor for lumber mill cogeneration to 46%, since "cogenerating equipment will operate only to supply the use mill's needs."[104] This heavy penalty ignores the Northwest Power Act and the Public Utility Regulatory and Policy Act, both of which encourage industries to sell unneeded electricity back to utilities. Finally, when the BPA Assessment departs from the RRC data, it produces such questionable assertions as: "it still remains more economical and less troublesome for a [lumber] mill to continue purchasing electric power" -- a contention BPA supports only with a hopelessly outdated 1976 study.[104]

One frequently cited barrier to cogeneration -- the availability of fuel -- is of relatively small concern in the Pacific Northwest. The RRC report estimated that 82% of the region's cogeneration potential was in forest-related industries,[105] which could easily use wood waste, a fuel source that is both widely available and relatively inexpensive. The shortage of suitable landfill space for woodwaste in Washington and Oregon coastal counties should spur exploitation of this resource. In addition, another cheap fuel source -- trash -- is readily available. In Everett, Washington, for example, the Boeing Company will soon burn trash to provide up to 60% of the space heating needs of its six million square foot airplane construction plant; combined savings on refuse hauling and fuel will give the company an estimated 35% annual return on its investment.[106]

For all these reasons, we believe that the RRC estimates of regional cogeneration potential are, if anything, too conservative. Accordingly, we will assume that 1645 MWe of cogeneration at an 80% capacity factor are now both technically feasible and economic. The Idaho Public Utilities Commission, and a Princeton University study, concur that an 80 percent capacity factor is reasonable.[107] We further assume, on the basis of RRC's analysis of installation lead-times, that this capacity can be phased in over the 1985-1990 period; recall that more than 420 MW already exists. Institutional barriers, which have blocked cogeneration in the past, could certainly be overcome by the policies outlined above in section B.5.d, all of which can be launched quickly by BPA and the region's utilities.

But cogeneration projections should not stop there. BPA's Conservation Assessment is guilty of one particularly crucial omission: it neglects the additional cogeneration potential that is implicit in additions to industrial capacity. We will make the more realistic assumption that the proportion of cogeneration capacity to total electricity consumption will remain constant within each SIC sector for the years 1990 to 2005. As a conservatism, we will base our cogeneration estimate on electricity consumption after conservation.

New plants will probably find cogeneration even more economic than existing facilities, since the plant can be designed around the cogeneration system in an integrated way, eliminating the high costs of retrofitting. Table 20 shows our calculations for these cogeneration potentials in each SIC sector, and Table 21 applies these intensities to predicted increases in electricity consumption rates. Where consumption reductions are projected, we assume conservatively that cogeneration capacity will fall short of the RRC predictions. These cogeneration potentials are then reduced by 8%, to parallel our adjustment of industrial needs for "housekeeping" conservation. Thus, in the high demand scenario, cogeneration capacity increases to 2077 MW by the year 2005, and in the low demand scenario it reaches 1,176 MW.

Table 22 shows the extent to which this cogeneration capacity can displace demands on BPA. In 1985, only that portion of the RRC potential which is already installed (420 MW) is available. By 1990, the full cogeneration potential in Table 21, which includes cogeneration due to increased industrial capacity, is put to use. With full accounting for available cogeneration, the total demand drops in both scenarios. In the high demand scenario, industrial demand stabilizes for the 1990-2005 period at roughly 91% of current consumption. In the low demand scenario, industrial demand falls to a level in 2005 that is about 65% of current consumption.

These projections are conservatively high, as noted previously, because they account for only identified process improvements using 1981 technology (or straightforward engineering developments from existing technology). Many of the most effective conservation strategies will be achieved by plant-specific efficiency improvements that cannot be specified here, for want of proprietary information, while other savings will result from technical breakthroughs yet to be made. A general overview, like this one, also omits a number of other potentially important measures, such as solar process heat, intra-plant recycling, and other process improvements that will be identified by plant managers once the economic incentives described earlier are in place.

TABLE 20

COGENERATION POTENTIALS FOR EACH SIC SECTOR

SIC	Technical Potential (a)	Montana Potential (b)	Total Technical Potential (c)	Grand Total with Additional Potential (d)	MWe per 10^6 kWh of Total Electricity Consumption
20	162.2	5.3	167.5	192.6	.0923
24	406.5	13.2	419.7	482.7	.1012
26	725.25	23.6	748.85	861.2	.0781
28	33.3	1.1	34.4	39.6	.0050
29	34.9	1.1	36.0	41.4	.0439
32	0	0	0	-	-
33(A&B)	16.0	0.5	16.5	19.0	.0007
37	0	0	0	-	-
Other	7.0	0.2	7.2	8.3	.0050
	1385.15	45.0	1430.15	1644.8	

a. Phase I of the RRC study.

b. The 45 MW of potential identified in Montana was never broken down into SIC sectors. We assume that this potential breaks down into the same proportions in each SIC sector as the "technical potential" does.

c. Column 1 plus Column 2.

d. Phase III of the RRC study found that gas turbines and condensing cycles would increase the total technical potential by 15%.

TABLE 21

TOTAL COGENERATION POTENTIAL
(MWe)

High Demand Scenario

SIC	1990	1995	2000	2005
20	245.1	265.4	282.7	301.2
24	536.1	556.0	589.3	622.9
26	1,123.9	1,097.9	1,127.2	1,157.4
28	53.2	55.6	64.4	75.4
29	53.1	50.0	55.7	61.9
32	-	-	-	-
33(A&B)	18.0	18.0	18.0	18.0
37	-	-	-	-
Other	13.3	15.0	16.8	18.8
TOTAL	2,042.7	2,057.9	2,154.1	2,257.2
After Housekeeping Adjustments	1,879.3	1,893.3	1,979.3	2,076.6

TABLE 21, continued

Low Demand Scenario

SIC	1990	1995	2000	2005
20	165.1	164.7	170.3	171.6
24	405.5	373.3	372.3	372.3
26	686.3	647.9	647.9	647.9
28	38.6	34.4	32.8	31.2
29	35.2	30.2	27.3	24.7
32	-	-	-	-
33(A&B)	17.9	17.8	17.3	17.3
37	-	-	-	-
Other	10.8	11.3	12.0	12.8
TOTAL	1,359.9	1,279.6	1,279.9	1,277.8
After House-keeping Adjustments	1,251.1	1,177.2	1,177.5	1,175.6

TABLE 22

TOTAL INDUSTRIAL DEMAND WITH COGENERATION
(10^6 kWh)

High Demand Scenario

	1985	1990	1995	2000	2005
Demand without Cogeneration	59,164	61,204	62,108	65,247	68,924
Cogeneration Supply	2,945	13,179	13,277	13,898	14,563
Total Demand	56,219	48,025	48,831	51,349	54,361

Low Demand Scenario

	1985	1990	1995	2000	2005
Demand without Cogeneration	51,530	50,470	48,426	47,666	47,231
Cogeneration Supply	2,945	8,774	8,256	8,258	8,244
Total Demand	48,585	41,696	40,170	39,408	38,987

Industrial Sector: FOOTNOTES

1. BPA Division of Power Requirements and Division of Conservation, Draft Technical Assessment of the Potential for Conservation and End-Use Renewable Resources in the West Group Area, 1980-2000, at 18, 66 (April 1981). The BPA conservation analysis covered the "West Group Area" and not the "Pacific Northwest Region," as defined in the Regional Act. This explains some of the differences between BPA's numbers and those from other studies. Since the differences between the Pacific Northwest Region and the West Group Area are rather trivial -- industrial sales to the former were only 8 percent higher than those to the latter -- BPA's analysis is relevant to a conservation scenario developed for the Pacific Northwest Region.

2. Synergic Resources Corporation, Industrial Process Energy End-Use Data Base for the Pacific Northwest, at I-14 (Vol. I), Y-7 (Vol. II)(May 1981). Roughly one-quarter of this consumption represents "non-firm" electricity.

3. Id. at I-14 (Vol. I).

4. BPA, note 1 above, at 66.

5. Synergic Resources Corporation, note 2 above.

5a. Letter from Brett Wilcox, Executive Director, Industrial Customers of Bonneville Power Administration, to Dilip R. Limaye, President, Synergic Resources Corpration (undated; copy received by NRDC on February 10, 1982).

5b. See Synergic Resources Corporation, Industrial Electricity Conservation Potential in the Pacific Northwest, Appendix F (February 1982). Appendix G of this report presents an extensive SRC response to these criticisms.

6. BPA Division of Power Requirements, Personal Communication of Computer Model Documentation, 17 September 1981. These data represent both firm and nonfirm sales. Our projections beyond 1980 account only for firm sales -- those BPA is legally obligated to supply.

7. BPA, note 1 above, at 8.

7a. The "base case" in all the models we examined assumed some responsiveness of demand to projected price increases in electricity and alternative fuels. Predicted changes in demand following price increases incorporate both an "income effect" and a "relative price effect." Embedded within the "relative price effect" category are assumptions regarding the extent to which both fuels and efficiency improvements will be substituted for increasingly costly electricity. Thus, every base case assumes some level of conservation.

These levels, however, are generally minimal. Historically, computer model estimates of overall "elasticities" (price responsiveness) have proved far too low in practice. See Energy Modelling Forum, *Aggregate Elasticity of Energy Demand*, Volumes 1 & 2 (November, 1981) (EMF Report #4). The models take no account of concerted efforts to improve financial incentives for conservation (beyond those created by rising but still-distorted prices), or to disseminate conservation-related information to plant managers. Moreover, the models often assume long-run electricity price *stability*, eliminating elasticity effects after the first few years of the forecast. See, *e.g.*, BPA, *Forecasts of Electricity Consumption in the Pacific Northwest* 58-64 (July 1982).

8. Solar Energy Research Institute, *A New Prosperity: Building A Sustainable Energy Future* 235 (1981).

9. Committee on Nuclear and Alternative Energy Systems, *Energy In Transition 1985-2010* 8 (1979).

10. Economist Kenneth Boulding, for example, concluded "that rates of economic growth will be much less than [2%]." *Id.* at 732-33.

11. SERI, note 8 above, at 176-77.

11a. Marc H. Ross and Robert H. Williams, *Our Energy: Regaining Control* (1981).

12. SERI, note 8 above, at 234.

13. Marc H. Ross, *et al.*, note 11a above, at 13.

14. *Id.* at 15.

15. *Id.*

16. SERI, note 8 above, at 176.

17. BPA, *BPA Evaluation of the NRDC Alternative Scenario*, 26 (1980) (monograph).

18. *Id.*

19. The coal cost figure assumes a 70% efficiency in local oil and coal burners. We also note that all of these estimates are probably too low, since delivered prices -- including costs of transmission, distribution, and utility overhead -- have historically been twice as large for industries (as busbar costs) and three times as large for residential-commercial customers. M.L. Baughman and D.J. Bottaro, "Electric Power Transmission and Distribution Systems: Costs and Their Allocation," Research Report #6, NSF-RA-N-75-107 (Austin: Center for Energy Studies, University of Texas, July 1975).

20. BPA Division of Power Requirements, Economic Studies Section, *Draft Economic/Demographic Projections of the Pacific Northwest* 147, 167 (November 1981).

21. BPA Division of Power Requirements and Division of Conservation, *Technical Appendix for the Draft Technical Assessment of the Potential for Conservation and End-use Renewable Resources in the West Group Area, 1980-2000*, C-13 (April 1981).

22. *Id.* at E-3.

23. Comptroller General, *Projected Timber Scarcities in the Pacific Northwest: A Critique of Eleven Studies*, EMD-79-5, ii (12 December 1978).

24. *Id.*

25. Gedney, Oswald & Fight, *Two Projections of Timber Supply in the Pacific Coast States*, PNW-60 (U.S. Forest Service, 1975).

26. Direct-Service Industrial Customer Power Sales Contract, Executed by the U.S. Department of Energy, Acting by and through the Bonneville Power Administration, § 5(d) (August 25, 1981).

27. New contracts were required to provide the same amount of power as old contracts. Pacific Northwest Electric Power Planning and Conservation Act, § 5(d)(1)(B), 16 U.S.C. § 839c(d)(1)(B). Levels of old contract entitlements can be found in U.S. Department of Energy, *Final EIS: The Role of the Bonneville Power Administration in the Northwest Power Supply System*, IV-82 (December 1980).

28. *Id.* Old contracts provided that the top quartile of DSI loads was interruptible and not to be part of BPA's industrial firm power planning.

29. Synergic Resouces Corporation, note 2 above, at III-90 (Volume I).

30. BPA must only plan for the more limited category of technological allowances identifiable now. Direct Service Industrial Customer Power Sales Contract, note 26 above, § 5(d)(9).

30a. U.S. Department of Energy, note 27 above, at p. IV-892.

30b. "Hanna Mining to Close Line at Nickel Plant," Wall Street Journal p. 34 (March 22, 1982) (37% production cutback).

30c. Ferronickel consumption in 1978 was 773 million kWh, 100% of firm contractual demand. BPA, note 21 above, at p. H-62. Thirty-seven percent of 773 million kWh is 290 million kWh.

31. Norman L. Dean, Jr., Energy Efficiency in Industry 50 (1980).

32. California Energy Commission, Energy Efficiency in California's Commercial, Industrial, and Agricultural Sectors, P-103-81-001, at 3-4 (9 October 1981).

33. Northwest Energy Policy Project, Energy Conservation Policy: Study Module 1-A, Technical Appendix 265 (1978).

34. Norman L. Dean, Jr., note 31 above, at 29.

35. Id., at 29, 70 (note 12).

36. "Waste Heat -- Recovered and Used in Hot Water District Heating and Cooling Systems -- Is Another Way for Industrial Plants to Supply Their Energy Needs," 4 Energy Conservation News 2 (November 1981).

37. "Computers and Conservation," The Energy Daily, 17 September 1981, p. 4.

38. Norman L. Dean, Jr., note 31 above, at 56.

41. Argonne National Laboratory, Classification and Evaluation of Electric Motors and Pumps, DOE/TIC-11339, February 1980, at 3-37.

42. Id. at 3-1.

43. Id. at 2-10.

44. D.J. BenDaniel and E.E. David, Jr., "Semiconductor Alternating Current Motor Drives and Energy Conservation," 206 Science 773-76 (16 November 1979).

45. Id. at 775. Exxon claimed to be preparing to distribute the ACS technology when it acquired Reliance Electric for $2 billion. Since the acquisition, however, Exxon has decided not to market ACS. Nevertheless, Exxon's decision should be read as an indication not that the technology was fraudulent, but instead that competitors are emerging so quickly that Exxon could no longer corner the market as it intended. Amory B. Lovins, Personal Communication, 25 November 1981. For example, 22 firms received licenses from NASA to market the Nola power factor controller, which can reduce electricity use by up to 35%. S. Neyers, "Efficient Electric Motors: Winding Up and Slowing Down," 3 Soft Energy Notes 27-29 (April 1980).

46. BPA, note 21 above, at C-12, I-18 (note 8).

47. A.B. Lovins, L.H. Lovins, F. Krause, and W. Bach, Energy Strategy for Low Climatic Risks, Report for the German Federal Environmental Agency, R&D No. 104-02-513. at 37 (June 1981).

48. S. Neyers, note 45 above.

49. A.B. Lovins, et al., note 47 above.

50. Synergic Resources Corporation, note 2 above, at I-14 (Vol.I).

51. BPA, note 21 above, at F-41. The 59% figure is derived by deducting the technical fix savings (37.5% from improved bulbs) and then applying the sum of the other changes to the new total.

52. Synergic Resources Corporation, note 2 above, at Y-9, Y-10 (Vol. II). Most sources are imprecise about whether their kWh-per-pound numbers refer to the plant or the reduction cell. As a conservatism, we will assume that all sources we quote are referring only to the reduction cells and not to the total plant.

53. Chris Kristensen and Joseph Correia, The Pacific Aluminum Industry: The Impact of Anticipated Power Rate Increases to 1991 (U.S. Department of Commerce, Office of Industrial Economics, April 1979), at 48.

53a. Personal communication from Eric Redman, attorney for the DSIs, February 8, 1982.

54. Jack Harper of Martin-Marietta Corp., Personal Communication, 17 June 1981.

55. Mike Hoeft, "Anaconda Company Layoffs Hit 77; Will More Follow?" Daily Inter Lake, 28 January 1981.

56. Bruce McPhadden of Kaiser, Personal Communication, 17 June 1981; Larry Young, "Kaiser Bets Millions on City," Spokane Spokesman-Review, 8 February 1981, p. 8.

57. Power Sales Contract Executed by Bonneville Power Administration and Alumax Pacific Corporation, 26 August 1981. Section 16(a) of the contract ensures that the Alumax plant may consume no more than the Mt. Holly, South Carolina plant, which, according to Eric Redman, attorney for the DSIs, consumes roughly 6.1 kWh per pound. Eric Redman, Personal Communication, 9 September 1981.

58. Rudolf Keller, Energy and Cost Calculations: I. Optimization of Electrochemical Processes to Achieve Minimum Production Cost and the Impact on Energy Consumption, ANL/OEPM-78-2, at 25 (April 1977); Theodore R. Beck, Final Report on Improvement in Energy Efficiency of Industrial Electrochemical Processes, ANL/OEPM-77-2, at 67 (January 1977).

59. BPA, note 21 above, at H-24.

60. U.S. DOE, Division of Energy Conservation, Industrial Recovered Materials Utilization Targets for the Metals and Metal Products Industry, SAN-1692-TI, at 3-60 (March 1980). Some have also claimed that titanium diboride cathodes cannot be run with interruptible power. Even if this were true, however, it would still mean that three-quarters of all capacity -- all potlines qualifying for firm electricity deliveries -- could be retrofitted.

61. BPA, note 21 above, at H-24.

62. Rudolf Keller, note 58 above, at 25; Chris Kristensen, et al., note 53 above, at 48.

63. BPA, note 21 above, at H-22.

64. Id.

65. To the contrary, results from the plant indicate savings as good as or better than the anticipated 30 percent reduction from the electricity requirements of the most efficient existing Hall-Heroult cells. See, e.g., Rudolf Keller, note 58 above, at 17.

66. Chris Kristensen, et al., note 53 above, at 49 (Table XXII) (figures for "total production costs" and "total costs" revised slightly to correct for addition errors in the table). The study assumed that a new Hall-Heroult cell in 1991 would consume 6.0 kWh per pound. Id. at A-2(n.8).

67. We assume that the other annual fixed cost items -- site charge, local taxes, and insurance -- remain unchanged.

68. The Crude Oil Windfall Profit Tax Act of 1980, §§ 221(a), 222(a)(2) (amending 26 U.S.C.A. §§ 46(a)(2)(C), 48(1)(2)(A)).

69. Chris Kristensen, et al., note 53 above, at 50.

71. Rudolf Keller, note 58 above, at 16-17.

72. Western Aluminum Producers, "Northwest Aluminum Industry Fact Sheet," at 3 (January 1980).

73. Id. at 3.

74. The Bureau of Mines (BOM) estimates that recovery from old scrap increased 78% between 1970 and 1979. The Aluminum Association, Aluminum Statistical Review, at 40-41 (1979). Recycling of aluminum cans also increased 65% between 1976 and 1979. U.S. DOE, note 60 above, at 3-68 (recycled cans contributed 218 million pounds of aluminum scrap in 1976); Western Aluminum Producers, "Northwest Aluminum Industry Fact Sheet," at 3 (January 1981)(360 million pounds in 1979). In addition, increased processing of dross, a byproduct of smelting that includes both aluminum and aluminum oxide, could also save much energy. For example, the recently opened Robert A. Barnes, Inc. dross processing plant will save 140 million kilowatt-hours per year over a typical Pacific Northwest smelter. Jeanie Senior, "Aluminum Recycled at Northwest Plant," The Oregonian (April 20, 1981).

75. In 1976, total scrap recovery was 1,466 thousand short tons while total capacity in primary aluminum industry was 5,193 thousand short tons. U.S. DOE, note 60 above, at 3-51, 3-68.

76. Synergic Resources Corp., note 2 above, at I-14 (Vol. I), N-11 (Vol. II).

77. Id. at N-8, N-10, N-11 (Vol. II).

78. Rudolf Keller, note 58 above, at 33.

79. Id. at 32 (Fig. 22).

80. Id. at 26 (emphasis added).

81. The basis of BPA's analysis appears to be a January 1977 report by Theodore R. Beck. BPA, note 21 above, at F-18, F-48 n. 10.

82. Rudolf Keller, note 58 above, at 27.

83. BPA, note 21 above, at F-21.

84. Synergic Resources Corporation, note 2 above, at I-14 (Vol. I).

85. Committee on Comminution and Energy Consumption for the National Materials Advisory Board of the National Research Council, Comminution and Energy Consumption, PB-115708, at 1-2 (May 1981).

86. Id.

87. Id. at 8-9.

88. Rocket Research Company, Industrial Electrical Cogeneration Potential in the Bonneville Power Administration Service Area: Phases III and IV Economic Analysis at 5, 9 (29 February 1980).

89. BPA, note 21 above, at C-8.

90. Rocket Research Company, Industrial Electrical Cogeneration Potential in the Bonneville Power Administration Service Area: Phase I, Technical Analysis at 7-1 (19 January 1979).

91. Id. at 8-1.

92. Id.

93. Rocket Research Company, note 88 above, at 10-11. The highest electricity cost with private financing was 6.8 cents per kilowatt-hour in 1983 dollars, a cost still lower than marginal thermal supply alternatives.

94. Id. at 9.

95. See section III.A above.

96. "Who Gains From Cogeneration?," Idaho Statesman, 20 September 1981.

97. Rocket Research Company, note 90 above, at 8-1. Thus, BPA's repeated assertion that RRC's estimates represent "upper limits" is incorrect. *See, e.g.*, BPA, note 21 above, at D-16.

98. *See, e.g.*, BPA, note 21 above, at C-8.

99. *See, e.g.*, *id.* at D-17.

100. *Id.* at E-15.

101. *Id.* at D-17.

102. Rocket Research Company, note 90 above, at 7-2.

103. BPA, note 21 above, at D-17.

104. *Id.* at D-16.

105. Rocket Research Company, note 90 above, at 9.

105. Ralph E. Winter, "Treasured Trash: More Companies Burn Waste to Generate Energy, Cutting Fuel and Disposal Costs," Wall Street Journal, 15 April 1981, p. 48.

107. Robert H. Williams, "Industrial Cogeneration," in 3 Annual Review of Energy, at 328 (Table 5, note a) (1978). The Idaho PUC, in its comments on the Model Plan, reported that five projects underway in that state "are planned to run at 90% availability level."

6. Irrigation Sector

Nine million acres of agricultural land are currently irrigated in the Pacific Northwest.[1/] Irrigation systems account for approximately 4-5% of the region's total electricity sales -- about 724 average MW in 1980.[2/] Irrigation is important to regional electricity forecasts not only because it consumes electricity, but also because the water it withdraws reduces river flows that could otherwise be used for hydroelectric generation or fish and wildlife protection. In this section, we describe conservation measures applicable to Northwest irrigation, suggest regulatory and incentive programs for both existing and new systems, and derive a forecast of irrigation electricity needs that includes the impact on hydropower production of conservation measures and irrigation development.

a. Inventory of Measures

Two basic methods of irrigation are currently used in the Northwest: gravity flow and sprinkler systems. In 1975, gravity flow systems accounted for 56% of irrigated areas while the three primary sprinkler systems[3/] represented 41%.[4/] Gravity flow methods involve siphoning water from a head ditch and sending it down furrows, or simply flooding a field and letting the water flow according to the lay of the land. Sprinkler systems send pressurized water into the fields through pipes; ultimately, water is aerially applied to the crop as droplets. Gravity flow methods use very little energy, but draw off copious amounts of water. Conversely, conventional high-pressure sprinklers use less water than gravity systems, but require significantly more energy in order to pressurize the water and overcome friction in the sprinkler pipes.

Options for reducing water and electricity consumption include increasing pump system efficiencies, improving irrigation management and adopting low pressure sprinkler systems. In addition -- although we would not classify them as "conservation" measures -- changes in crop patterns have significant implications for the energy needs of the irrigation sector, and no forecast can afford to ignore them.

i. Improving Pumping Efficiencies

Increases in pump system efficiencies are most important for deep wells, for high-lift pumping of river water and for sprinkler application systems where water is pressurized, but improvements can also be made in the operation of pumps at head ditches in gravity flow systems. Some reductions in electricity consumption can be obtained by ensuring proper maintenance, including periodic lubrication and the replacement of worn parts. Additional efficiency improvements result from correct pump-to-load sizing when installing pumps and from changing the shape of pipes fittings around the pump. For example, most fittings around pipe corners are 90° angles; more gradual angles would reduce the friction caused by water flow against the inside of the pipes, and allow higher pumping efficiencies. One source estimates that increasing pumping system efficiencies could save up to 106 average MW in the year 2000 at a cost ranging between 15 and 68 mills/kWh.[5/] However, pump upgrading only saves electricity and water if it is accompanied by better water system management -- improved pumps won't produce any savings if they are simply used to move more water.

ii. Water System Management

Irrigation management can reduce water and electricity consumption by allowing farmers to be more precise about the timing and amount of water application. In general, farmers make highly subjective judgments about when and how much to water their crops. Since farmers worry more about under-watering than over-watering, they tend to err on the side of extra consumption.[6/] Emerging techniques that respond to this widely-acknowledged problem include the use of computers and data recording instruments to determine the precise scheduling and amount of water necessary for each crop.[7/] Because the data gathered are tailored to each farm (reflecting, *e.g.*, the humidity and wind speed over the crop, soil type, moisture levels in the soil, and specific crop requirements), refinements in scheduling make it possible to save significant amounts of water and electricity. One study of Pacific Northwest agricultural electricity savings indicates that up to 217 average MW of pumping electricity could be saved in the year 2000, at a cost ranging between 5 and 31 mills/kWh, through scheduling improvements alone.[8/] Although improved management could theoretically reduce river withdrawals for gravity irrigation, such systems probably do not allow enough control over water applications to make these efforts worthwhile.

iii. Low-Pressure Sprinklers

Low-pressure sprinkler systems save significant amounts of energy by reducing friction loads and water pressure. Some low pressure systems also save water, by releasing it close to the soil and thus reducing evaporation losses. Because of the capital cost involved in switching to low pressure sprinklers from existing systems, this conservation option confronts economic barriers that will slow implementation unless new financing mechanisms are made available. As with any technology, care must be taken to employ such sprinklers correctly. For example, low pressure central pivot sprinklers can reduce water application efficiency and increase runoff and soil erosion, absent countervailing precautions (such as appropriate cultivation, increased rotation speed, and proper design).[9/] Additionally, low pressure systems may not work on particular soil types or in areas with rolling topography.

iv. Crop Selection

Finally, water and energy can be saved by switching from crops such as alfalfa and sugar beets that use water (and thus energy) intensively to crops such as barley and dry beans that require less irrigation.[10/] As part of a still more fundamental shift in agricultural practices, economic considerations may also encourage a turn toward crops that require little or no irrigation. As explained below, the value of water- and electricity-intensive crops may be far less than the cost of the resources needed to produce them; removal of subsidies that mask this effect, or introduction of countervailing incentives, will shift crop patterns. Alternatively, such economic imperatives as sharply rising electricity prices and a changing agricultural market may tend to discourage growth in irrigated acreage.

b. Regulatory and Incentive Programs

Barriers to the implementation of conservation strategies for irrigation include a lack of information about available technologies, and the short payback time on investments that farmers require. An arbitrarily short payback period is dictated by a system in which credit secured in the winter to pay for fertilizer, seed, equipment, and labor must be paid off at harvest time the next fall. Efficiency improvements, viewed in this perspective, do not make sense unless they will pay for themselves in one or two years. As a result, we suggest below supplementary incentives that BPA could provide to encourage cost-effective investments in irrigation efficiency. Of course, program administration will have to be tailored to the unique needs of each agricultural district.

i. Existing Lands

Part of the Model Plan incentive program for existing irrigation systems is modeled on our commercial and industrial sector recommendations. Audits should be made available to all existing systems, and a list of measures that can be implemented by each farmer should be compiled. Savings that pay for themselves in two years or less represent a large benefit to the farmer and would not be eligible for BPA payments; however, savings in excess of this "rapid payback" threshold would qualify for financial incentives. Payments for these energy savings should be structured to provide both up-front capital and long-run incentives for good management. For example, projected savings in excess of the rapid payback threshold could be assigned a dollar value based on the cost of new electricity supplies. One-half of this amount could be awarded immediately to the farmer, to help defray capital costs; metered savings that exceeded those for which the farmer had already been paid would qualify for additional rebates as they occurred.

A separate program should be developed by BPA to encourage reduced water consumption, e.g., by paying farmers part of the regional benefits realized by shifting to crops that use less water. Under such an initiative, BPA would be making cost-effective purchases of water, which could then be used to satisfy fish and wildlife, recreational or hydropower needs.

Educational and technical assistance programs should also be launched, to ensure that farmers are aware of the new programs and the benefits they offer. Finally, BPA-funded research is needed to identify additional conservation options for irrigators; the historic emphasis on rapid-payback measures has prevented adequate investigation of the full range of cost-effective opportunities for efficiency improvements.

ii. Bringing New Lands Under Irrigation: Toward a More Rational Policy

Our forecast of electricity needs for new irrigation assumes no fundamental change in irrigation policy, beyond use of the incentive approaches outlined above. However, the region need not and should not accept this assumption. For reasons explained below, we think that both the public and the existing farm community are poorly served by current practices underlying the planning and development of new irrigation projects.

Historically, the development of new irrigation projects was viewed as clearly beneficial to the general public. These projects provided jobs, increased agricultural production, induced development of unpopulated lands, and stimulated the economy. Today, however, insufficient water supplies to satisfy all competing demands, the high and rising cost of energy, and the nature of the agricultural market all indicate that expanding irrigation no longer makes sense in the Pacific Northwest.

The public heavily subsidizes both private and federal irrigation development with three resources: water, energy, and land. Thus, for example:

- Through the allocation of water rights for additional irrigation, public resources are transferred free of charge into private hands. The private developer pays nothing for the water rights, but the transfer costs the public dearly, in reductions of hydropower production, fish populations, and recreational opportunities.
- New irrigation developments increase power loads, but most of the accompanying costs are spread over rate payers as a whole.

- o The federal government continues to give away thousands of acres of public land for private agricultural development. In addition, states have been leasing lands for irrigation at prices far below their market value.[11/]

Cumulatively, such subsidies mean tremendous burdens on the public, and the situation is worsening rapidly. Lands near rivers were developed first; as a result, additional development can only occur on less favorably situated lands at higher pump lifts -- requiring more electricity use per acre even if the same amount of water is used. Between 1950 and 1975, the irrigated area of the Northwest doubled. However, the energy used for pumping increased 18 times and the per-acre pumping requirements increased 800%.[12/] New irrigation projects consume about 600,000 kWh per year per job created. This makes irrigation development second only to the aluminum industry in electricity-intensiveness.[13/]

It is possible to approximate the dollar value of the public subsidy for new irrigation projects. On average, each new acre developed in the Columbia River system results in 2250 kWh/acre/year used for direct pumping needs, and an additional 2370 kWh/acre/year lost to the hydro system -- a total of 4620 kWh/year for each acre developed.[14/] If we assume that the cost of supplying the additional load and replacing the lost hydro-generation is 80 mills/kWh -- the approximate cost (excluding environmental costs) of energy from a new coal or nuclear power plant -- the total cost is $370 per acre per year. However, the irrigator only pays the retail rate for electricity used to pump the water. At even 30 mills/kWh (most irrigators pay substantially less at present), this results in an annual payment by the developer of only $68 per acre. The difference between these figures -- $302 per acre per year -- is the annual subsidy that ratepayers must supply through higher electricity prices if new irrigation development occurs. Even a very profitable farm could not repay the public for these expenditures and hope to remain in business.

Existing farmers are among those hit hardest by new irrigation projects. The Army Corps of Engineers recently published a study on Columbia Basin water[15/] that found no net benefit to the national economy from further irrigation development in the Pacific Northwest if all factors were taken into account, including the costs of forcing existing farmers out of business by introducing highly-subsidized new competition.

Why is further irrigation development continuing when the costs to the public are so high? The answer lies largely in the omission of the above-described public costs from decisions to expand irrigation. The developer does not have to reimburse the public for losses incurred, and therefore is blissfully indifferent to them. Additionally, federal and state laws actively encourage additional irrigation, subsidizing both the delivery of water and the acquisition of land. For example, the Bureau of Reclamation provides water to farmers at highly subsidized rates; the difference between farmers' payments and the real cost of Bureau of Reclamation water projects represent 80-90% of the construction costs.[16/] The Desert Lands Acts and the Cary Act enable citizens who are willing to install irrigation systems to purchase Federal desert lands at bargain prices -- $1.25 per acre under the Desert Lands Act.[17/]

Recently Congress made changes in the Reclamation Act, which were designed to rein in some irrigation subsidies. Under the revised Act, however, farmers may own up to 960 acres and still receive inexpensive water through the Bureau of Reclamation; the previous (widely ignored) rules set a 160-acre limit. Any farmer who receives water from Reclamation projects to irrigate more than 960 acres will be assessed the full cost of delivering the water. The effect of the revised Act on Northwest agriculture depends greatly on how the Bureau chooses to enforce it. If history is any indication, there is little reason for optimism. Even if fears of back-sliding prove unfounded, public subsidies will remain extensive, despite the Reclamation Act amendments.[18/]

One possible response to these problems is the approach outlined above for existing irrigation systems, which targets heavily-subsidized waste and water-intensive practices for incentive payments that would cost the region less than the subsidies associated with continuation of these actions. But new projects lack the compelling equity claims that existing irrigators can make in defense of their qualification for incentives. Accordingly, where new irrigation would not occur without public subsidies of some kind, Northwest citizens may wish to seek changes in the laws and regulations that create the subsidies. Options include:

- Attaching fees to water rights associated with new irrigation developments, reflecting hydropower losses at the point of diversion.
- Instituting hook-up fees based on the horsepower of new irrigation pumps, which would force energy-intensive high lift developments to pay the costs they are imposing on the region.
- Eliminating the current practice of allocating 80-90% of the capital costs associated with new federal water projects to the public at large.

We reemphasize here that our forecast does not rely on these and comparable changes in current law. However, we believe that a regional debate on subsidies for new irrigation projects is long overdue.

c. Forecast of Electricity Needs

To determine electricity requirements of irrigated agriculture over the 25 years from 1980 to 2005, we first divided irrigated lands into two categories: existing lands and lands that will be developed in the future.

Electricity used on existing lands is further divided by segregating electricity used by the Bureau of Reclamation to pump water to a farmer's head ditch (about 22% of 1980 consumption) from electricity purchased at retail rates (about 78% of 1980 use).[19] Under current Bureau policies, the water itself is free, and farmers pay only part of the costs of having the water delivered to their farms. Essentially, farmers participating in the Bureau's projects pay operation and maintenance costs (including power costs ranging from 0.5 to 6.5 mills/kWh) and a small part of the original capital cost of building the project. The electricity price is based on long-term contracts written some years ago, and is not subject to increases. Since the total charge is assessed on a per acre basis instead of on the basis of how much water is used, there is no incentive to reduce consumption. For all these reasons, lands served by the Bureau of Reclamation present unique problems for conservation policy, which are reflected in our forecast.

i. Existing Lands

In 1980, existing irrigation consumed about 555 kWh/acre if Bureau of Reclamation pumping is included. Potential reductions in electricity consumption by these lands are addressed extensively in a recent BPA-commissioned study.[20/] As the savings possible from Bureau of Reclamation pumping were not assessed in that study, the following discussion pertains only to electricity purchased by farmers at retail rates.[21/]

The measures evaluated in the BPA study consist of both short- and long-run adjustments; cumulatively, they result in an estimated 55% savings over total current use. On a region-wide basis, short-run adjustments, primarily improved irrigation management and higher pumping efficiencies, result in an 18% reduction in energy use. Long-run measures, including the installation of low pressure irrigation systems, changing irrigation systems, and switching crops, result in approximately 37% savings beyond those achieved in the short run.

We incorporate part of this identified savings potential in our high and low demand forecasts of agricultural electricity needs, and assume it is achieved as a result of both imminent rate increases and long-term financial incentive programs. Again, these projections apply only to existing lands that are not served by the Bureau of Reclamation. The base from which the 55% savings should be subtracted is difficult to ascertain, since some of the low-cost conservation measures included in the savings estimate were already being employed in 1980. To be conservative, in both demand cases we assume that one-third of the short-run savings potential had already been realized by 1980, so only two-thirds are still available. For long-run savings, we further conservatively assume that only 75% of the total potential is obtained by 2005 in the high demand forecast and 85% in the low demand forecast. Thus, in the high demand forecast, a total 40% reduction in 1980 electricity use is assumed by 2005 while the low-demand case produces a 43% reduction. Again, these figures cover only existing lands subject to retail electricity rates.

As noted above, Bureau of Reclamation electricity consumption is treated separately from other electricity used for irrigation. In our high demand forecast, we assume that no conservation occurs within the Bureau of Reclamation projects. Energy consumption therefore remains at the 1979 to 1980 average Bureau of Reclamation usage reported by BPA. In the low demand scenario, we assume that efficiency improvements in pumping adopted by the Bureau of Reclamation, and/or reductions in public subsidies to these lands, will result in 30% savings by 2005, compared with 1980 consumption.

Thus, by 2005, electricity used to irrigate existing lands would total 498 average MW in the high demand case and 433 average MW in the low demand case. This represents a 31%

reduction (267 average MW) in the high demand case. This estimate compares favorably with the savings projected by Battelle Northwest Laboratories in its submission to the Northwest Power Planning Council.[22/] Battelle found that 528 average MW of total potential savings were available to the region in 2000 from selected irrigation conservation measures. Since their figure includes incoming irrigation developments (14.8% of total 2000 acreage), the inferred conservation potential on existing lands is 450 average MW, and our high demand estimate would reflect a maximum 59% realization of those savings. In fact, the realization factor is lower, since Battelle's total potential savings estimate did not include measures that are incorporated in our projections (shifts in crop patterns).

ii. Future Irrigation Development

The development of some new irrigation projects, to which public subsidies have already been committed, is almost certain. However, considering the escalating cost of electricity and the increasing value of water for generating hydro-power, it is questionable whether much additional development is either likely or justified.

For estimating future energy loads attributable to the development of additional irrigation, we rely on projections prepared for BPA by Dr. Norman Whittlesey. He classifies

472,000 acres as "most likely" to be developed,[23] and an additional 257,000 acres as "less likely" candidates.[24] We also accept Whittlesey's estimates that an average of 2529 kWh/acre/year will be required for the "most likely" new developments, and 1739 kWh/acre for the "less likely" projects.

In the high demand scenario, we assume full development of both the "most likely" and the "less likely" projects, for a total of 729,000 acres. This results in 187 average MW in additional consumption by 2005. In the low demand scenario, we adopt all the "most likely" and half the "less likely" projects, for totals of 600,500 acres and 162 average MW by 2005.

iii. Implications of the Forecast for Hydropower Production

In general, Model Plan conservation measures for existing lands will not boost hydropower production significantly (although they will save electricity), since much of the excess water now being used on these crops nonetheless finds its way back into the river system. By contrast, switching to less water-intensive crops clearly will increase instream flows and thus hydropower availability. Nonetheless, we conservatively assume no change in the existing relationship between the hydro system and currently irrigated lands, for both the high and low demand scenarios.

For the development of additional irrigated acres, we adopt Whittlesey's estimates of hydro system losses, which average 3189 kWh/acre for "most likely" projects and 868 kWh/acre for "less likely" projects. This results in a total loss of 197 average MW by 2005 in the high demand case, and 184 average MW by 2005 in the low demand case. We assume a gradual phasing-in of these losses over the period 1985 to 2005.

Our estimates of total losses to the hydro system are probably too high, since we only account for losses in production due to incoming lands, and do not credit the system for reductions in water use on existing lands.

AGRIGULTURAL ELECTRICITY CONSUMPTION

High Demand
($x\ 10^6$ kWh)

	Pre-1980 Lands	Bureau of Reclamation Use	Lands Developed Post-1980	Total
1975	3775	1065	0	4842
1980	4965	1384	0	6349
1985	4744	1384	328	6456
1990	4303	1384	656	6293
1995	3861	1384	985	6230
2000	3420	1384	1313	6117
2005	2979	1384	1641	6004

Low Demand

	Pre-1980 Lands	Bureau of Reclamation Use	Lands Developed Post-1980	Total
1975	3775	1065	0	4842
1980	4965	1384	0	6349
1985	4728	1301	284	5969
1990	4254	1218	567	6039
1995	3779	1135	850	5764
2000	3305	1052	1134	5491
2005	2830	969	1420	5219

Irrigation Sector: FOOTNOTES

1. Pacific Northwest River Basins Commission, "Irrigated Lands in the Pacific Northwest 1980"(July 1980).

2. From Bonneville Power Administration historical sales data. The 1980 consumption used here is the average of 1979 and 1980 to account for weather-induced fluctuations that lowered 1980 electricity consumption relative to 1979 and the historical trend.

3. These sprinkler systems are: hand move, side roll, and center pivot.

4. King, Larry D., et al., Energy and Water Consumption of Pacific Northwest Irrigation Systems, by Oregon State University for Battelle Pacific Northwest Laboratories, September 1977. The remaining 3% consists of permanent, solid set, big gun, and drip irrigation systems.

5. Battelle Pacific Northwest Laboratories, Assessment of Electric Power Conservation and Supply Resources in the Pacific Northwest, Volume IV, Irrigated Agriculture, p. 7.11 (June 1982) (prepared for the Northwest Power Planning Council).

6. Id., p. 2.3.

7. Sacramento Bee, "Customized Irrigation -- Technology Turning Water Art into Science" (May 11, 1982).

8. Battelle Pacific Northwest Laboratories, note 5 above, pp. 7.13 and 7.11.

9. Id., p. 2.3.

10. See J. Hamilton, G. Barranco & D. Walker, Measuring the Benefits and Costs of Irrigation Development in Idaho, manuscript draft, 1981, p. 30.

11. For example, Boeing rents 100,000 acres from the state of Oregon at $1.38 per acre; it has developed irrigation on over 30,000 acres of this land which are subleased to another large company, SimTag. Even considering capital expenditures for the irrigation system, Boeing and SimTag are greatly benefitting from the cheap lease; irrigated land in the same area rents for $225 to $250 per acre. [From: Water Energy, and Land, Idaho Citizen's Coalition, 1981, pp. 53-55.]

12. Bruce W. Cone, et al., "An Analysis of Agricultural Potential in the Pacific Northwest with Respect to Water and Energy," 1979, p. II-34 (prepared for the Northwest Agricultural Development Project).

13. Norman Whittlesey and Walter Butcher, "Economics of Water Tradeoffs in the Columbia River System," paper presented at Eastern Washington University, October 25, 1979, p. 20.

14. Whittlesey et al., footnote 20 above, p. 50.

15. U.S. Army Corps of Engineers, Columbia Basin Water Withdrawal Environmental Review, Appendix C, Part III, May 1980, p. 33.

16. Idaho Citizens Coalition, Water, Energy, and Land 46 (1981); telephone conversation with Dr. Norman Whittlesey, October 8, 1982.

17. Hamilton, et al., note 10 above, at p. 8.

18. For example, the 960 acre limitation is assessed per irrigation district, not per water project. Thus, in the Columbia Basin project, which serves three irrigation districts, a farmer could own 2880 acres and still qualify for subsidized water deliveries.

19. Telephone conversation with John Wilkins, Bonneville Power Administration, March 12, 1982.

20. Norman Whittlesey, et al., Demand for Electricity by Pacific Northwest Irrigated Agriculture, (January 1982) (commissioned by Bonneville Power Administration).

21. Whittlesey's study models the conservation that farmers would install as electricity prices increase. He modelled price increases of 22 mills/kWh, 44 mills/kWh, and 88 mills/kWh which reflect approximate 100%, 200%, and 400% increases over prices in 1981. We assume that the same savings could be accomplished by incentives and regulation. Although marginal avoided power costs are more than 80 mills, we conservatively adopt the Whittlesley savings estimates that assume a 44 mill/kWh increase, bringing total costs to 66 mills/kWh.

22. See Battelle Pacific Northwest Laboratories, note 5 above, at 7.13.

23. This includes the East High Projects, Chilan-Okanogan, Hood, Bruneau 2, and Boise 2.

24. Horse Heaven Hills, Bruneau 1, Westside 2, Mid-Colombia, and Willamette. See Whittlesey, et al., note 20 above, p. 50.

IV. Avoiding Unnecessary Thermal Power Development

One of the Coalition's objectives in preparing the Model Plan was to determine whether new nuclear or coal-fired power plants would be required to meet the Northwest's energy needs over the next two decades, if vigorous efforts were made to increase the efficiency of electricity use and utilize cost-effective renewable energy resources. As explained above in section II, we have determined that no new thermal plants are needed; indeed, under the Model Plan, it would be possible to defer at least five plants that are now under construction.

These conclusions were reached without assuming any reliance through the year 2000 on a number of options, all preferable to thermal plants on cost, reliability, and flexibility grounds, which provide an additional margin of safety in case demand growth outstrips expectations or the region must prematurely retire some of its coal, nuclear, or hydro plants. These include:

- Wind-generated electricity: Appendix 12 provides a survey of cost-effective, environmentally acceptable wind energy potential, which reaches 170 average megawatts by 1990 and 984 average megawatts by the year 2000. Wind units lend themselves well to a flexible power planning strategy, since they can be added to the system in small increments (unit sizes range from 50 kilowatts or less to 6 megawatts) and require only two to four years for site preparation and installation.

- Electricity surcharges or "curtailment purchases" in times of threatened supply insufficiency: The Northwest Power Planning Council has expressed considerable interest in readjusting economic incentives to minimize disruptions in response to unexpected supply insufficiencies. Rather than paying to stockpile expensive power plant capacity to meet such emergencies, ratepayers would benefit from less costly alternatives that include temporary surcharges and "buy-backs" of electricity from large industries, in the event that appeals for voluntary short-term cutbacks are insufficient.
- Environmentally acceptable small-scale hydropower projects: Unfortunately, the current surge of interest in "small hydro" projects has produced many proposals that could seriously harm the region's fish and wildlife resources (see section VIII below). However, such damage can be minimized where facilities are installed at existing dams and irrigation systems. If properly managed and sited, these resources offer an additional alternative to thermal power for meeting future electrical energy needs in the Northwest.
- Geothermal district heating: Both Klamath Falls, Oregon and Boise, Idaho now make direct use of hot water geothermal resources. Applications include pavement de-icing and heating of residential and industrial

buildings, commercial buildings, and pools. Many other communities may be able to take advantage of the Northwest's ample endowment of low temperature geothermal resources, for district heating and other purposes.

- Photovoltaics: At some point within the period of the forecast, electricity from photovoltaic cells probably will become less expensive than the output of new coal and nuclear plants in at least some areas of the region. Quantifying this potential is difficult at present, but photovoltaics can be expected to make a significant contribution in decentralized agricultural and residential applications.*

These options, and the other Model Plan measures, permit far more flexible power planning than large scale thermal power plants with ten to fourteen year lead-times. As a report recently prepared for the Northwest Power Planning Council observed**:

> When comparing projects that are equally costly to the region, those available on short notice should be given priority over those with long lead-times; small projects should be preferred to large ones, and programs that can be slowed, halted, or reversed should be more useful than those entailing inflexible commitments.

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*See, for example, Natural Resources Defense Council, Choosing an Electrical Energy Future for the Pacific Northwest: An Alternative Scenario 104 (1980); Solomon, "New Low-Cost Photovoltaic Cell Goes on Market," The Energy Daily (June 3, 1982), p. 2.

**K. Lee, "The Path Along the Ridge: Regional Planning in the Face of Uncertainty," at p. 5 (March 1982).

V. Optimizing Regional Economic Development Through the Promotion of Labor-Intensive Energy Resources

The Northwest's grim unemployment statistics afford one of the strongest reasons for supporting the Model Plan. Coal and nuclear plants cost the regional economy dearly in terms of job creation, by siphoning funds from more job-intensive uses both within and outside the energy sector. The Model Plan, by contrast, would (1) produce more jobs per dollar invested in energy services than the thermal power alternative and (2) free up billions of dollars for use in sectors that are more job-intensive than power plant construction.

Several findings from recent studies dramatize these points. A 1981 report to the Washington Environmental Council (WEC) identified the utility industry as one of the economy's least promising in terms of jobs produced per dollar of investment.* Compared with an average job-creation cost for the entire manufacturing sector of $18,000 per employee (in 1977 dollars), an investment of $105,000 is needed to create a new job in the public utility sector. Thus, "money saved on energy is almost certain to create more jobs when it is invested in other parts of the economy."**

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*D. Smolewicz, "Energy and Jobs," May/June 1981 Solar Washington 11.

**Id.

By the same token, a dollar used within the energy sector for conservation and solar applications will yield more labor years than a dollar diverted to a new large-scale power plant. In fact, the ratio is almost three to one, according to New York's Council on Economic Priorities.* Additional features of the tradeoff are described in the WEC report:

> Jobs in conservation and solar will have a more decentralized character than jobs produced by power plant construction. While the manufacturing of components will probably pass largely into the hands of large corporations, the construction and installation of conservation/solar technologies will be done almost entirely by small neighborhood firms. In contrast, mining and power plant construction often require workers to move to remote job sites.

Finally, through efficiency improvements that will enable Northwest industries to compete more successfully in national markets (see section III.B.5 above), the Model Plan provides a way to reverse current trends toward plant shut-downs and production cutbacks. Model Plan measures also offer local governments a way to reduce energy costs substantially without cutting back other functions, which will help preserve jobs and essential public services.

To make these benefits more concrete, we performed a "jobs impact" assessment of one of the many components of the

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*Council on Economic Priorities, Jobs and Energy, at p. 12 (1979). See also Mid-Peninsula Conversion Project, Creating Solar Jobs: Options for Military Workers and Communities 12 (1978).

Model Plan program: the performance standards for new residential buildings described in section III.B.2.d above. If the Model Plan were not implemented, and efficiencies of new Northwest housing through the year 2000 remained at levels characteristic of current practice, the region would spend some $967 million during the year 2000 to pay for wasted electricity that could have been saved, by adopting and enforcing the Model Plan's performance standard, for about $228 million.* These figures are in 1982 dollars; they exclude environmental costs. The difference -- $739 million -- is enough, in that one year alone, to underwrite more than 27,000 manufacturing sector jobs, based on the average figures reported in the WEC study.** Had these dollars remained in the public utility sector, they would have created only about 4,500 jobs. On the Model Plan side of the ledger, in addition to the hundreds of millions saved for general investment through residential performance standards, the $228 million expended on building and maintaining more efficient new housing is itself a more job-intensive expenditure, per dollar, than an equivalent payment for power plant construction.

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*Both figures represent levelized costs incurred during the year 2000 for power plant and conservation resources of equal sizes and projected lifetimes.

**Adjusted for inflation between 1977 and 1982.

Comparable analyses can and should be performed for the rest of the Model Plan program. What bears emphasis here is that these and related Model Plan benefits are threatened by any move to expand the Northwest's inventory of thermal power plants. The dollar drain for plants already under construction reached unprecedented levels in 1981, and five of the investor-owned utilities serving the region *each* intend to spend more than $300 million for construction during 1982.* Over the twelve month period ending in September 1982, the Washington Public Power Supply System borrowed almost $2.3 billion. These are ominous trends for anyone seeking ways to put an end to rising unemployment in the Pacific Northwest; the Model Plan offers an urgently needed change of course.

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*"Utilities Will Increase Construction Spending," *Seattle Daily Journal of Commerce*, March 11, 1981.

VI. Assuring that the Financial Assistance and Local Development Provisions of the Act are Made Available on an Accelerated Basis to Those Most in Need of Such Provisions

The percentage of household budgets that low-income families must allocate to energy is up to three times what middle-income families pay. Conservation and renewable energy measures offer a way to cut these increasingly unmanageable utility bills dramatically, but neither the "free market" nor conventional incentive programs will speed these measures to those who need them most urgently. The indigent suffer under a dual handicap: they lack funds to invest even in partially-subsidized measures with substantial initial costs, and they live disproportionately in rental housing,* whose owners control decisions on whether retrofits should be undertaken. The Model Plan offers a comprehensive response to these barriers, involving new regulatory and financial inducements coupled with aggressive outreach and marketing programs. Key recommendations, most of which have been described at length in earlier sections, include:

o Phased-in, mandatory weatherization of rental housing, drawing on precedents already established in Minnesota,

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*In 1977, the median income of renters was only $8800, compared to $16,000 for homeowners. Bleviss, "Conservation and Rental Housing: An Unanswered Need," Energy Conservation Bulletin (February/March 1982), at p. 2.

Wisconsin, and many California jurisdictions.* The Bonneville Power Administration, acting through the region's utilities, would provide the same financial incentives to landlords that the Model Plan recommends for homeowners generally. Criminal penalties would play no part in the enforcement process. Acceptable alternatives include (1) preventing sales of unweatherized units until compliance has been certified or funds have been deposited in an escrow account to meet the seller's share of retrofit costs; or (2) requiring owners who fail to comply within a specified period to pay fines set by reference to the extra electricity costs that they are imposing on the region's ratepayers.

- The Model Plan also contemplates substantial expansion of existing financial and rate incentives for adopting the measures described in Section III.B.2 above, to help ensure that no family is denied the opportunity to install cost-effective conservation or solar for lack of funds.
- For families near or below the Federal Poverty Guidelines (less than $10,000 for a family of four), a prerequisite

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*See, for example, Wisconsin Statutes, Chapter 101.122 (directing development of mandatory rental retrofit standards, which were published in draft form in June 1982); Minnesota Statutes, § 116H.129 (directing promulgation of mandatory retrofit standards, which became effective on January 1, 1980); Danielson, "Local Energy Efforts Sprout," 5 Soft Energy Notes 74 (14 percent of California population now lives in jurisdictions with mandatory retrofit ordinances).

for Model Plan retrofits is Bonneville's agreement to pay 100% of the costs. From a regional standpoint, these payments are not "handouts," but purchases of a cost-effective energy resource. Accordingly, a number of Northwest Conservation Act Coalition members already are working to establish a BPA-funded program using the federal low-income weatherization delivery system of state governments and Community Action Agencies. Prompt BPA action is urgently needed; direct federal support for low-income weatherization was cut 50% in fiscal year 1982, and is slated for still further reductions in FY 1983.

o In general, aggressive outreach -- including door-to-door solicitation and neighborhood-based demonstrations -- is essential to build the broadest possible base of participation in the Model Plan's residential programs. Media advertisements and mass mailings are not sufficient. A recent Pacific Power & Light proposal for a path-breaking demonstration program in Hood River, Oregon -- designed to "assess the degree to which the universal weatherization of a community's structural stock can be achieved"* -- is built around a door-to-door marketing effort.

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*Pacific Power & Light Co., "The Hood River Pilot Conservation Project," at 17 (February 24, 1982).

Some utility officials have expressed resistance to the concept of special incentives for low-income participation, arguing that Bonneville "is not a social welfare agency." But it is precisely because Bonneville is an agency charged with acquiring all cost-effective conservation that it should be concerned about targeting financial assistance at the indigent. The region has at least 100,000 unweatherized, electrically-heated low-income residences.* As matters now stand, Bonneville is prepared to offer the occupants no more than partial financing for some of the residential measures identified in the Model Plan. Without a significantly expanded commitment, BPA will be abandoning a substantial, cost-effective conservation resource that is waiting to be extracted from low-income households. The agency will then have to spend still more money on higher-cost resources, which will worsen the plight of indigent and middle income ratepayers alike. BPA does not need to become a social welfare agency in order to reject this fiscally imprudent course.

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*Figures compiled by Spokane Legal Services Center in attachment to January 26, 1982 letter from James A. Bamberger to Steve Hickok.

VII. Promoting Equitable and Resource-Conservative Rate Structures

We noted earlier that rate reform is not the sole answer to the region's electrical energy problems, but it certainly is part of the solution. Currently, rate structures at both wholesale and retail levels create significant barriers to the development of cost-effective conservation and decentralized renewable resources. Utilities (at the wholesale level) and consumers (at the retail level) are getting severely distorted signals about the cost of new supplies to the region. These signals, and the responses they produce, are impeding the development of a least-cost electrical energy future.

Accordingly, the Model Plan proposes numerous changes in current electric rate design policies. Virtually all of these policies have been adopted by at least one electric utility in the Pacific Northwest, but no utility has fully implemented the overall program we propose.

Rates should encourage people to use additional electricity only when the value of doing so exceeds the cost of generating the necessary kilowatt-hours. Economists generally agree that this goal is best served when goods are sold at a price equal to the marginal cost -- the cost of producing the last unit of goods. In theory, a consumer's willingness to buy at that price justifies the allocation of resources needed to produce additional units. But utility rates typically reflect only the average cost of all electricity produced or purchased by the system. This has the effect of temporarily disguising the high cost of adding new supplies to the existing base, which is dominated in the Northwest by relatively inexpensive electricity from hydroelectric dams.

While consumers benefit from average cost pricing at the outset, it quickly takes a substantial toll on family and business budgets. Distorted prices lead inevitably to an unnecessarily expensive electrical energy system, as increased demand spurred by deceptively low prices leads utilities to develop costly new sources of supply. The WPPSS fiasco provides a classic illustration of this problem.

In recent years, a number of remedial proposals have surfaced. One innovative approach, suggested by the Pacific Power and Light Company during rate hearings before the Oregon Public Utility Commissioner, was to increase rates to consumers to the level of marginal costs, with state and local governments using the increased revenues to reduce sales, property, and other taxes. Ratepayers as a whole would be no worse off (higher rates are offset by lower taxes), and electricity would be consumed only where cost-effective. However, such a drastic change in electricity prices would harm those who have made major investments based upon current conditions. This policy cannot be considered seriously unless mechanisms are found for assisting such consumers in altering their usage patterns.

The Model Plan proposes a number of less radical changes in rate design, which are all candidates for adoption by the Regional Council as model conservation standards. Alterations are needed at both the wholesale (BPA) and retail (utility) levels, in order to signal to consumers the actual costs and benefits they impose on the region through decisions to use more or less electricity. These proposals call for redesign of rates, involving offsetting increases and decreases in particular rate schedules, to improve the reward system that electricity bills create.

A. Wholesale Rates

1. Tiered Rates

Nearly all Northwest utilities have signed long-term contracts that obligate the Bonneville Power Administration to meet some or all of their needs through the year 2002. Current BPA rates reflect a "meld" of (generally cheap) hydropower costs and (generally much higher) thermal power costs. BPA currently plans to continue the melding process for output from new thermal plants, which will cost at least thirty times more than much of the electricity generated by the existing hydropower system.

Obviously, this practice hides from both utilities and consumers the true costs of adding nuclear and coal-fired power plants to the region's supply inventory. In addition, it gives utilities incentives to oppose cost-effective conservation and solar in their service districts; as long as they can obtain deceptively cheap power from BPA, consumer-installed conservation and solar can prove adverse to the economic interests of a retail utility.*

A "tiered" wholesale rate structure would respond to all these problems. Such a structure would divide the existing supply of low-cost power among BPA's utility customers, through some formula reflecting each district's essential needs. Utilities would be put on notice that energy purchased in excess of that allocation (the first "tier" of the wholesale rate structure) would have to be paid for at the actual cost of production from more expensive new resources (the second "tier"). The U.S. General Accounting Office endorsed a two-tiered wholesale rate for BPA almost three years ago;* the issue has been raised repeatedly, although thus far unsuccessfully, in BPA rate proceedings.

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*The Regional Council recently described this problem as follows:

> Under current BPA rate design policies many of BPA's preference customers "lose money" on the conservation programs they implement. This occurs because their rates must recover both the cost of BPA power and their own fixed cost. Consequently, for each kilowatt-hour they do not sell, while they avoid paying BPA, they also do not collect revenue needed to cover their own fixed expenses.

Northwest Power Planning Council, "Rate Design Model Conservation Standards: Decision Memorandum (October 1982).

BPA's opposition has been based primarily on three arguments, which are summarized here and reviewed separately below: (1) tiered rates would introduce a new element of instability in BPA revenues, because it would be hard to predict their effect; (2) it is difficult to design the "tiers" equitably -- how can BPA determine what each district's allocation of low-cost power should be?; and (3) the results tiered-rate advocates seek to achieve can be reached through alternative methods.

With regard to the "revenue instability" introduced by tiered rates, it should be noted that BPA frequently has had to deal in the past with inaccurate projections of incoming revenues; the well-established response is to adjust rates for subsequent years to correct the discrepancy. One expert recently argued at length, in unrebutted testimony before BPA, that tiered rates actually might work to increase the stability of BPA revenues.**

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*Letter, dated February 6, 1980, from J. Dexter Peach, Director, GAO, to the Honorable Jim Weaver, U.S. House of Representatives.

**Testimony of Dr. Thomas M. Power on behalf of People's Organization for Washington Energy Resources, Bonneville Power Administration Wholesale Rate Hearings, at pp. 33-36 (May 1982).

The problem of equitably dividing BPA's low-cost power supplies through a tiered rate structure is more substantial, but it is far from insurmountable. At least two comprehensive proposals have been advanced recently; both set out mechanisms for calculating "essential needs" blocks of cheap power on a district-by-district bases.* These methods take into account differences between districts in end use inventories and population/economic growth. Of course, it will be impossible to design a "perfect" system, but what must be kept in mind is that any resulting inequities will almost certainly pale to insignificance beside those inherent in the current BPA melded rate. Under current policies, the fastest growing, most economically robust districts are permitted to shift most of the costs of meeting their expanding electricity needs to ratepayers in less fortunate districts. This patently regressive system of transfer payments can and should be discarded without delay; tiered wholesale rates will help ensure that rapidly growing districts pay their fair share of the costs they impose on the entire system.

BPA's final argument for rejecting tiered rates is that alternative mechanisms can accomplish the same result. In particular, BPA points to the "billing credits" system described in the Regional Act, which requires BPA to make payments to utilities that sponsor conservation programs or renewable energy resources. Unfortunately, BPA has made no commitment to offer adequate billing credits, nor has the agency made any provision for such payments in its latest revenue projections. Almost two years after the passage of the Regional Act, no final regulations governing billing credits had been issued; BPA's draft proposals were characterized as woefully inadequate by virtually all commentators.* These and related problems** convince us that hypothetical billing credits are no substitute for genuine rate reform at the wholesale level.

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*See Natural Resources Defense Council, Choosing an Electric Energy Future for the Pacific Northwest: An Alternative Scenario 236-40 (1980); Testimony of Dr. Thomas M. Power on behalf of Peoples' Organization for Washington Energy Resources, Bonneville Power Administration Wholesale Rate Hearings, at pp. 39-68 (May 1982).

2. Low-Density Discount

Under the Model Plan, wholesale rate discounts for utilities with low system densities would be retained, but they would be delivered differently.

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*See, for example, 47 Federal Register 9760, 9779 (1982) (BPA proposes to set billing credits by reference to the average cost of resources actually used to meet load growth in the year of the award, not the cost of new resources displaced by qualifying measures).

**A perceptive discussion of the generic deficiencies of billing credits is found in Northwest Power Planning Council, "Rate Design Model Conservation Standards: Decision Memorandum" (October 1982).

Although not so intended when established, the low-density discount has actually worked as an incentive for additional energy consumption. Qualifying rural utilities receive a uniform percentage discount, applied to total electricity purchases; as a result, the current policy provides a larger dollar discount to customers -- and utility districts -- using relatively large quantities of electricity. Meanwhile, these utilities have set high monthly service charges, while accurately reflecting discounted energy and demand charges in consumers' rates. The result is functionally indistinguishable from a "declining block" retail rate structure, which rewards increased consumption with lower costs per kilowatt-hour. By withdrawing the percentage low-density discount, and substituting discounts that are independent of energy consumption, BPA can eliminate rewards for electricity waste while still providing rate relief to rural utilities with high distribution costs. Acceptable options include uniform discounts based on the number of consumers per square mile of distribution lines, and discounts based on an actual calculation of local distribution costs per consumer.*

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*For an extensive discussion of ways to restructure the low density discount, see Direct Testimony of Jim Lazar, People's Organization for Washington Energy Resources, Bonneville Power Administration Wholesale Rate Hearings (May 1982).

3. Demand Changes

To provide better price signals without increasing total revenues collected from Northwest ratepayers, BPA should shift charges now imposed on capacity requirements into its energy accounts. Seasonal and time-of-day variations in energy prices are more effective than demand changes in both "flattening" and reducing peak power loads, by signalling to consumers varying costs associated with providing service at different times during the year. Demand charges encourage BPA customers to maintain unvarying loads year-round; yet, perversely, there is no chance that consumers who do so will cut consumption during periods when the cost of service is highest. If the goal is to reduce peaks, unvarying loads are no solution. The same considerations argue for eliminating demand charges at the retail level.

4. Allocation of Conservation and Solar Costs Incurred by BPA

All costs of BPA's conservation and solar programs should be recovered through the agency's rates, just as the full costs of BPA's ill-fated purchases of WPPSS capacity are being recovered through BPA rates. Efforts to fund conservation and solar programs through direct fees to utilities that participate, as some have proposed, are inconsistent with both the Model Plan and the Regional Act. Thus, if part of the cost of implementing a BPA program must be paid as a fee by a utility participant, nonparticipants are correspondingly rewarded. On the other hand, if all BPA's conservation costs are recovered in rates, what amounts to a "bonus" for nonparticipation is eliminated.

The costs thus absorbed by BPA rates should be spread equitably across all BPA's customer classes, to the extent that each benefits from the savings produced by conservation and solar programs. For example, since BPA-financed residential savings produce economic benefits for BPA's large industrial customers (by reducing the amount they must pay under the Regional Act to meet some of the costs associated with BPA's residential sector sales), it is only fair that these industrial customers should pay a proportionate share of program costs.

B. Retail Rates

The People's Organization for Washington Energy Resources recently published a comprehensive consumer manual that includes extensive discussion of the retail rate recommendations approved for inclusion in the Model Plan.* We refer the reader to that widely available document for elaboration of most of the points made below.

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*People's Organization for Washington Energy Resources, The People's Power Guide: A Manual of Electric Utility Policies for Consumer Activists (1982). This manual can be obtained by calling or writing POWER at 419 Security Building, Olympia, WA 98501, (206)943-6530.

1. Declining block rates, which reward increased consumption with decreasing charges per kilowatt-hour, should be eliminated. Such rates are unjustifiable and counterproductive when new electricity supplies cost more than the output of existing resources; consumers get precisely the wrong signal. Nonetheless, a July 1981 survey by the Northwest Public Power Association found that 26 publicly-owned utilities in the region were still offering declining block rates.*

2. Monthly service charges should be sharply reduced or eliminated. Virtually all Northwest residents pay a monthly service charge, sometimes $10 or more, regardless of how much electricity they consume. This shifts to small users a disproportionate share of electricity costs, and produces the equivalent of declining block rates even in districts that levy a uniform charge per kilowatt-hour; the more you use, the less the average price per kilowatt-hour becomes (because the service charge is spread over an increasing number of kilowatt-hours). Concerns about recovering the costs of reading meters, or preventing vacation homes from reaping disproportionate benefits, can be met by substituting minimum bills for service charges. For most customers, who use more than the amount of energy covered by the minimum bill, the effect is the same as a zero monthly service charge.

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*Northwest Public Power Association, "Retail Rates Survey" (July 1981).

3. Retail rates should be inverted, allotting each household a low-cost block of "essential needs" power and charging extra for consumption in excess of that amount. Existing electric-heat customers should receive a larger low-cost allowance than those who heat with oil or gas; this increased allowance can be keyed to the post-weatherization needs of an average all-electric house. As a result of these actions, low-consumption households -- which include disproportionate numbers of indigent families -- will pay significantly reduced rates.

4. Rates should be differentiated by season, to reflect the different costs of supplying energy during summer and winter months.

5. Rates for large commercial and industrial customers should incorporate an interruptible feature, allowing customers who accept this option to form a reserve pool that utilities can turn to first for curtailment in the event of unexpected power shortages. These customers would qualify for payments if their service is interrupted temporarily, reflecting the cost of the energy that their utilities otherwise would have had to purchase (probably from expensive out-of-region sources) in order to maintain electricity deliveries.

6. Innovative rates that go beyond these requirements should qualify for BPA payments, reflecting the value of additional savings. Examples would include tiered rates for industrial and commercial customers.

C. Conclusion

If the recommendations of this section are adopted, some of the economic obstacles to cost-effective conservation and solar applications will disappear. Of course, other important barriers will remain (see section III.B.1 above); experience elsewhere in the United States indicates that even extremely high electricity rates do not guarantee rapid implementation of cost-effective conservation and solar measures. Thus, in addition to rate reform, the Model Plan calls for regulatory action, mechanisms to help consumers and businesses obtain initial financing for Model Plan measures, and special programs targeted at low income ratepayers.* However, more equitable and resource-conservative rates clearly will play an important role in delivering the economic and environmental benefits of the Model Plan, by encouraging individual consumers and businesses to take responsibility for careful management of the region's electricity resources.

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*The Northwest Power Planning Council staff has recognized that rate reform will not eliminate the need for such measures:

> [T]hose with limited access to capital are less able to respond to a rate design strategy compared to a billing credit or program strategy. Renters are also differentially impacted by a rate design . . . strategy compared to a direct conservation program strategy. Even under a rate design strategy both of these differential impacts can be mitigated, for instance with a financial assistance program for those with a relatively low access to capital.

Northwest Power Planning Council, "Rate Design Model Conservation Standards: Decision Memorandum" (October 1982).

VIII. Protecting the Natural Environment, Including the Fish and Wildlife Resources of the Region

The Model Plan advances this goal in several significant ways. Most obviously, it avoids the many severe environmental consequences that inevitably would attend construction of new coal and nuclear plants. Such facilities would bring, among other things, increased contamination of the air and impairment of visibility in both urban and rural areas of Idaho, Montana, Oregon, and Washington, caused by the emission of hazardous particulates and gasses from coal-fired power plants; possible serious loss of aquatic life because of thermal and chemical pollution from nuclear power plants; increased fish mortality, decreased recreational safety, and disruption of commerce on the Columbia River due to increased use of hydro-generators for peaking power; increased risks of a catastrophic accident and routine release of hazardous radioactive materials at nuclear power plants and their supporting facilities; disruption of wildlife habitat and removal of thousands of acres of land from agricultural and recreational uses during and after the construction of transmission lines; and destruction of thousands of acres of other agricultural, grazing, and recreational lands by the surface mining of coal and uranium. Of course, the Model Plan's measures have environmental implications too, not all of them negligible. However, the Plan demonstrates that the negative impacts of its recommendations will be substantially less severe than those of the power plants that will be displaced. Also addressed are mitigation measures for conservation (e.g., measures to ensure high indoor air quality) and renewable resources (e.g., siting plans for wind machines that minimize adverse aesthetic impacts).

The Model Plan also assumes regulation of the hydroelectric system to enhance fish migration and provide increased protection for fish and wildlife populations. Power system management competes with Northwest fish and wildlife for the same water resources. Past development of power projects and their continuing operation have destroyed large amounts of salmon and steelhead habitat, and reduced the size of the runs. Fish and wildlife losses can be expected to increase if Northwest utilities persist in efforts to shift hydroelectric projects increasingly into peaking use, while relying on nuclear or coal-fired thermal plants to meet base loads.

The intent of the Regional Act is to reduce existing fish and wildlife losses, and to prevent new losses. The Northwest Power Planning Council's regional energy plan must be developed with due consideration for "protection, mitigation, and enhancement of fish and wildlife and related spawning grounds and habitat, including sufficient quantities and qualities of flows for successful migration, survival, and propagation of anadromous fish." § 4(e)(2), 16 U.S.C. § 839b(e)(2). This requirement extends throughout the region, and covers the fish and wildlife resources of the Columbia Basin, Puget Sound, and the Oregon Coast. In addition, the Act establishes special protections for the Columbia River system under section 4(h), 16 U.S.C. § 839b(h).

The Model Plan accommodates fish and wildlife in three ways. First, it provides for improved operation and management of existing power projects, from a fish and wildlife perspective; second, it contemplates environmentally enlightened development of new hydroelectric projects; and finally, it endorses a resource development strategy that will work to the advantage of fish and wildlife resources.

A. Improved Operation of Existing Projects

At present, hydroelectric operations are exacting significant and continuing fish losses. Among the major contributing factors, particularly in dry years, is alteration of natural streamflows to maximize power production. The spring freshet, which is so important in moving juvenile salmon and steelhead to the ocean, has been virtually eliminated by dams and impoundments in order to provide for power production in the winter.

To preserve and enhance fish populations, flows must be released from reservoir storage during the spring and summer juvenile migration. However, this kind of flow release can reduce the power system's ability to meet firm loads in dry years, if reservoirs do not refill in time to meet fall and winter power demand. Essentially, fish flow releases shift hydropower generation from the higher-demand winter months to the lower-demand spring months.

The value of power foregone as a result of providing fish flows has been debated extensively. It may be useful analytically to quantify fish flows in terms of dollars of hydropower generation foregone, but note that such issues are seldom raised regarding allocation of river water to non-power uses other than fish. The Columbia River is generally regarded as a multipurpose resource: water used for locking vessels on the river is deemed an operating constraint on the hydroelectric system; irrigation is based on a system of water rights. There is no charge to either use that is based on foregone hydroelectric power. The fish have been using the river far longer than any of these competitors, and they have an even higher claim to adequate flows. The provision of such flows for fish, like those for other non-power uses, should be considered a system-wide operating constraint. Fish and wildlife agencies have recommended a "sliding scale" of flows that provides for a sharing of both shortages and surpluses between power generation and fish.

There is no consensus among regulatory bodies and advocacy groups concerning the amount of hydroelectric generation that must be foregone in order to ensure adequate spring river flows. The Model Plan doubles the 450 average megawatt estimate of the National Marine Fisheries Service, which has been criticized widely as inadequate. We then assume, conservatively, that one-third of the resulting 900 average megawatts of "shifted" hydropower can be recouped through mutually beneficial exchange agreements with California. Other analysts sensitive to the problem believe that the resulting estimate of net energy losses (600 average megawatts) is excessive,* but we have decided to opt for a margin of safety. After 1985, the net allowance is raised by 50%; increasing contributions from conservation and solar resources make additional fish protection possible after that date.

B. Control of New Hydroelectric Projects

Recent relaxation of regulatory requirements, and new incentives for installation of small hydroelectric systems, have produced a burst of speculative proposals for development. Consequently, hundreds of new hydro projects are currently under study throughout the Northwest. Because of their fish and wildlife impacts, these proposals must be viewed cautiously. Some projects at existing dams and irrigation systems may be entirely benign; other proposals may have unacceptable impacts on fish and wildlife unless adequate protective measures are implemented, and still others may be unacceptable no matter what measures are taken. Cumulative impacts at both the local and regional level must be fully considered.

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*See, e.g., Romer Associates, Northwest Electric Load Shaping for Fish Enhancement (November 9, 1981).

The Model Plan assumes that all new hydroelectric development will receive searching environmental scrutiny. Criteria recently recommended for the Columbia Basin by the state and federal fish and wildlife agencies and the Indian Tribes include:

- o effective upstream and downstream fish passage;
- o adequate flows and water quality;
- o compensation for unavoidable losses;
- o measures to satisfy Indian treaty obligations;
- o consultation with the agencies and Tribes; and
- o decisions based on specific written findings.

It is premature to say how these criteria will be applied to the hundreds of proposed projects, or how much new hydropower capacity can be reconciled with fish and wildlife requirements. Therefore, as a conservatism, the Model Plan includes no new hydroelectric projects in its estimates of resources available to meet future energy needs (section II above).

C. A Resource Development Strategy that Benefits Fish and Wildlife

Incorporation of fish and wildlife needs into power system decision-making will require new ways of evaluating all options for meeting Northwest energy needs. New resources must be chosen with full awareness of both costs and benefits associated with fish and wildlife. Energy conservation and load management will be favored under such revised decision processes.

Much of the pressure on fish and wildlife and their habitat is due to demands for daily and seasonal peaking from hydroelectric projects. The conservation and rate reform measures recommended in the Model Plan will reduce such pressures, by working to reduce fluctuations in daily and seasonal load shapes. Reduced demand for peaking will improve the flexibility of the hydro system and ensure improved flows for fish. In sum, the Model Plan demonstrates that Northwest power planning can provide for both fish and wildlife protection and an adequate and economical power supply.

IX. Maximizing the Use and Development of Community-Based Resources and Structures in Implementing the Act

The Model Plan lays out a path to increased local self-sufficiency and self-determination. It calls upon citizens and businesses to take their electrical energy futures into their own hands, and offers urgently-needed relief to local economies and ratepayers. But no one should assume that these goals will be realized automatically through the implementation of the Regional Act. This section suggests ways that local organizations and individuals can make the Act -- and the Model Plan -- work for them.

To ensure that utilities, local governments, organizations, and individuals can be effective actors, there should be major emphasis on education and infrastructure development. It is not enough to offer financial incentives: the Model Plan also envisions education on energy use and the design and implementation of conservation and solar measures, and prescribes a number of urgently needed infrastructure improvements.

In the past, the Pacific Northwest relied almost exclusively on utilities to produce and market electrical energy services. They developed systems for generating electricity at large-scale power plants, delivering the product to local customers, and convincing those customers to increase consumption steadily. By the late 1970s, this led to a paradoxical situation: utilities had developed a sophisticated marketing system for selling an abundant and inexpensive commodity that was now both oversubscribed and costly. At the same time, efforts by conservation and renewable energy firms to offer alternative ways of meeting electrical energy needs were hampered by market and institutional barriers.

The Regional Act marked an overdue recognition that the Northwest's future energy acquisitions must emphasize conservation and direct solar applications. This requires, in turn, a shift of emphasis toward the role of community-based resources and institutions. Acquiring energy through conservation and solar measures is fundamentally different, in concept and application, from earlier approaches based on large-scale generating units. The former strategy is built around millions of widely dispersed decisions and actions; the latter concentrates dollars and centralized management on a relative handful of energy resources. Also, solar and conservation expertise generally has been developed outside the utility sector, by small businesses, architects, engineers, contractors, and developers.

These considerations mean that the delivery systems for conservation and renewable energy systems must rely on local entities outside the traditional utility sector. These delivery systems are not yet in a position to meet the demands contemplated in the Model Plan; remedying that condition is a crucial and immediate priority. For example, despite the rhetorical support that BPA and others have given the measures described in the Model Plan, many small businesses in a position to provide conservation and renewable energy services are currently failing as a result of cash flow problems. Forecasts of the major contributions that such measures can make must be backed by provision for commensurate programs.

In developing strategies for making sure this happens, it is useful to keep in mind that the Act sets up a region-wide competition among towns, cities, and states to develop cost-effective conservation and renewables. Communities that lag behind will find themselves paying part of the costs of programs initiated by communities that forge ahead. Of course, everyone ultimately benefits from this "race," because the resulting actions all work to reduce regional needs for expensive thermal power. But this is a competition in which no district that is solicitous of ratepayer interests can afford to fall far behind.

In all end use sectors -- residential, commercial, industrial, and irrigation -- implementation of Model Plan measures will require major contributions from diverse community actors and institutions. For example, housing services are delivered through a fairly well-defined "shelter industry" system, which involves consumers, home builders/designers, realtors, appraisers, primary mortgage lenders, and secondary mortgage lenders. Outside this system, various specialized small businesses have sprung up to deliver conservation and solar services to the residential market. To ensure widespread penetration of conservation and solar in the residential sector, the entire shelter industry system -- in conjunction with conservation and solar delivery mechanisms -- must be "primed." Prerequisites -- which apply also to the other end use sectors -- include:

(1) Education of consumers on the benefits of conservation and solar measures (e.g., by community energy groups and energy extension services*);

(2) Access to capital for installation of conservation and solar measures (BPA is the Regional Act's primary financing mechanism, as explained below, but innovative approaches for improving and broadening access to these funds are urgently needed. Illustrative proposals appear below); and

(3) Quality assurance to ensure that measures perform as predicted (e.g., major training programs for auditors and solar/conservation industry personnel are urgently needed).

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*The marketing agent for conservation programs must be credible (expert and trustworthy) in the eyes of the public. Several studies document, and rapidly rising rates will exacerbate, the credibility problems that traditional energy suppliers face in marketing conservation. Consumer-oriented, community-based organizations must play a substantially enhanced role in order to market conservation programs effectively.

Also important is a strengthened role for local government, both in policy formulation (e.g., building codes and development standards) and enforcement (where, among other things, training of building code inspectors assumes special importance). Local governments also possess many unexploited energy resource options, such as recovery of electricity by conservation in public facilities and encouragement of solar energy development with solar access ordinances. Through these and other means, the Model Plan calls on local government to become a significant supplier of new energy resources.

An obvious question immediately arises as to the availability of financing for these initiatives. Under the Regional Act, BPA becomes a major conduit for funds to back conservation and renewables at the local level. The Act repeatedly emphasizes BPA's obligation to acquire all cost-effective renewable energy resources needed to meet anticipated load growth, and adds still stronger guarantees for conservation: such measures get a 10% "bonus" in cost-effectiveness calculations, and the statute "prohibits BPA from letting up on conservation even if BPA has a power surplus on its hands."* BPA funds can reach the local level in at least four ways:

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*Eric Redman, "The Northwest Regional Power Act: Conservation and Resource Opportunities for Municipalities", at p. 7 (1981). See Regional Act, §§ 3(4)(D) & 6 (b)(5), 16 U.S.C. §§ 839a(4)(D) & 839d(b)(5).

(1) as payments for participation in BPA conservation programs, which already or soon will cover many residential and commercial retrofit measures;

(2) as payments to local banks and lending institutions, enabling them to reduce interest rates for loans used by individuals and businesses to finance conservation and solar measures;

(3) as outright purchases of the "capability" of conservation measures and renewable energy resources, through which BPA assumes the risk that the measures and resources may not perform as planned;

(4) as "billing credits," or reductions in the BPA wholesale electricity rates paid by utilities, in districts where conservation measures not covered by a BPA program are implemented, or where renewable resources are developed but not offered to BPA as described in item (3) above.

These funding mechanisms create the following illustrative options for implementing the Model Plan at the local level:

o In collaboration with citizens' groups and businesses, local utilities develop plans to finance installation of Model Plan measures by local contractors, and subsequently explore all possible ways to speed installations in residential and commercial buildings (Pacific Power &

Light's proposed Hood River project is the best example that has emerged to date; it includes most of the Model Plan's retrofit measures and calls for a door-to-door marketing campaign). As part of this effort, experienced citizens' groups run a series of workshops covering weatherization, home energy management, renewable energy retrofits, and consumer protection. Note that it does not matter whether individual measures are covered expressly by a BPA conservation program; all Model Plan measures not yet in that category will qualify for billing credits, which BPA must award once savings have been demonstrated.

- Instead of relying exclusively on utilities as conduits for its investments in residential conservation, BPA develops new approaches to work directly with local boards of realtors, local lenders, and local conservation and solar businesses to prime the conservation delivery pump. For example, realtors are given financial incentives to identify homes that are energy-inefficient at times of sale; local conservation businesses, working in conjunction with the realtors, are brought in to retrofit the properties; and the local utilities conduct follow-up inspections to ensure high-quality work.
- Citizens' groups convince their local government to adopt the Model Plan's recommendations for upgrading building codes and eliminating over-lighting in existing commercial

buildings. The resulting electricity savings earn billing credits,* which are used to defray costs associated with the new regulations and to reduce local utility bills.

- Local businesses or individuals form a corporation equipped to audit commercial buildings and install Model Plan measures. The corporation sells the energy savings it produces to its local utility, which recoups the purchase price from BPA through conservation program payments and billing credits. Alternatively, the corporation sells BPA the "capability" of its proposed program of efficiency improvements and renewable energy measures; BPA assumes all risks of the enterprise and guarantees payment for projected savings at a mutually agreed price.
- Local solar industries arrange for low interest bank loans to customers installing their products, made possible by BPA payments to the lender.**
- A local industrial plant installs efficiency improvements that permit it to maintain production with less electricity. It also discovers that its waste heat could

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*Billing credits would be earned until, and unless, the Regional Council called for equally stringent codes in its "model conservation standards"; after that date, the local code would still yield substantial rate benefits, by shielding residents from surcharges prescribed in the Regional Act.

**BPA has not yet established such a program, but the agency and the Regional Council are giving the option serious consideration.

be used, through cost-effective cogeneration, to produce substantial amounts of electricity. BPA pays for the efficiency improvements through billing credits, which are passed through to the plant by its utility. BPA also signs an advance guarantee to purchase the output from the cogeneration unit, lowering financing costs and ensuring a market for the energy.

- Local entities develop plans to build a small-scale, environmentally acceptable renewable energy generating resource. BPA funds the investigation and pre-construction expenses and agrees in advance to pay for anticipated output, ensuring the availability of favorable financing.

In working to ensure that their communities take advantage of these and related opportunities, Northwest citizens will find the Model Plan useful in still another respect: it affords specific targets against which to measure the adequacy of local efforts. Where Model Plan recommendations are omitted or diluted by a proposed utility program or building code, local groups can and should point out that the result is to squander opportunities for additional rate relief -- opportunities that other communities are unlikely to ignore. To preempt such problems, and promote its other goals, the Model Plan calls for initiation of county energy planning throughout the Northwest. County energy plans, to be developed with the broadest possible community involvement, should focus on present community energy use; conservation and renewable resource potentials; the jobs and capital flow impacts of alternative community-based solutions to energy problems; and -- most important -- the development of community-wide strategies to meet county conservation and renewable resource goals.

The discussion of BPA's conservation and solar financing requires one significant qualification. BPA takes the position that such financing is tied to the execution of long-term power sales contracts by local utilities. The deadline for signatures was August 28, 1982. Although most Northwest utilities accepted the contracts, six did not.* A utility that refuses to sign is saying, in effect, that it intends to meet the long- term electrical energy needs of its customers without help from Bonneville. The response of local groups should be that such utilities must be prepared to replace BPA as the primary financing mechanism for conservation and solar programs in their service territories. Refusals to do so would provide a strong basis for campaigns opposing efforts by the abdicating utilities to burden ratepayers with new large-scale power plants.

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*The six were Pend Oreille County PUD, Mason County PUD No. 3, Pacific County PUD, and the cities of Centralia, Washington, Canby, Oregon, and Cascade Locks, Oregon.

Any utility that is contemplating a coal or nuclear power project should be asked by its ratepayers to answer one highly specific question: Would the plant be needed to serve the utility's loads if the measures described in the Model Plan were installed throughout the utility's service territory at rates specified in the Plan? No Northwest utility lacks the capacity to adjust its demand forecasts in response to that question, and no utility that is leaning toward purchase of all or part of a new coal or nuclear plant is justified in refusing to address the alternatives offered by the Model Plan.

X. Ensuring the Preservation of Democratically Controlled Local Public Power Systems in the Northwest (i.e., Public Utility Districts, Cooperatives, and Municipals)

Democratically controlled public power systems have an important role to play in the implementation of the Model Plan. This role includes, but is not limited to, assisting in the development of the broadly-based community energy plans described in section IX above, and working with other local groups and institutions to ensure that community conservation and renewable energy goals are realized. The thrust of the Model Plan is toward decentralized strategies for meeting energy needs, guided by public participation; involvement in that effort will both revitalize local utility systems and reaffirm the highest traditions of the region's public power systems.

One crucial point should be reemphasized in closing: the Model Plan will not succeed without broad support in Northwest communities. Extensive citizen involvement in program development and delivery of services under the Plan is essential to overcome political and institutional barriers that otherwise could delay or defeat the effort. We repeat here a point made at the outset: the ultimate beneficiaries of the Model Plan can and must assume the leading role in its implementation. The primary goal of this document is to provide assistance in doing just that.

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